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Washington Highlights

Lead by Senators McCarran of Nevada, and Downey and Knowland of California, the Senate finally passed the tidelands quitclaim legislation by a roll call vote of 44 to 34 following two days debate on the measure and a strong fight put up by Senate majority leader Barkley of Kentucky, and a bipartisan group. The vote was taken by previous agreement on the first day of the last week of the present session. The legislation now goes to the White House for the president's signature. Up to now Mr. Truman has given no public indication as to what action he intends to take. He could sign the bill, thus making it law. He could veto it. Or he could make use of the pocket veto by merely neglecting to sign for a period of ten days, which would run until after the end of the session slated for July 27. Just before the vote the legislation was endangered by an attempt by Senator Morse of Oregon to attach a poll-tax amendment to the measure, but this move was defeated.

Action on the tidelands quitclaim bill came despite strong administration objections. Upon the motion of Senator McCarran (Dem., Nev.), sponsor of the measure, the Senate voted 46 to 21 to consider the bill before it recessed for the summer. The House passed the bill by an overwhelming majority over a year ago.

Despite a strong fight by Barkley to prevent the bill from coming up, McCarran's motion to "settle for all time" the question of title to the lands underneath tidewater and navigable inland streams of the country, was carried.

Senator Tobey (Rep., N.H.), who led the fight against the confirmation of Edwin W. Pauley, California oil man as Undersecretary of the Navy, angrily denounced the bill and said that "characters" who were involved in the Pauley hearings several months ago would be down here to Washington "within 48 hours to lobby for the bill." Pauley has just returned from a reparations mission to Europe.

Barkley based his objections to the bill on the grounds that the United States Supreme Court is now considering the question of title to the tidelands of California, and any legislative action with respect to similar lands in all other states should await a decision by the Court in the California case.

"A controversy so important as this should not be taken away from the Court by legislative action," he said.

Barkley and McCarran held a heated debate on the effect of the Supreme Court suit on states other than California. Barkley charged that it was "utterly untrue" that an adverse decision by the Court would cloud title to tidelands outside of California. McCarran interposed to say that the Court has already handed down more than 50 decisions upholding state's rights to their tidelands.

However, Barkley contended the none of these decisions holds that the states have any title to "lands under the sea."

California's two senators, Downey and Knowland, joined in the fight to obtain immediate consideration of the legislation. Downey pointed out that the rights of the states to their tidewater lands had been recognized "from 1777 to 1937." At that time he said, former Secretary of the Interior Ickes, and former Senator Nye (Rep., N.D.) started to "agitate the theory" that these lands belonged to the Federal government instead of to the individual states.

Knowland charged that the Supreme Court suit is "an attack upon the sovereignty of California." "A decision in favor of the Federal government," he said,"would furnish a precedent under which the Federal government could go in and seize all tidelands in the United States."

An amendment to the bill, offered by Senator O'Mahoney ((Dem., Wyo.), which would reaffirm the title of the Federal government to the continental ocean shelf whereever it extends beyond state boundaries, was adopted in the first day's debate on the measure. This had previously been claimed by presidential proclamation. O'Mahoney warned that the continental shelf might be the nation's only source of oil in years to come.

Senator Overton (Dem., La.) charged that Ickes was the originator of the controversy over the ownership of the tidelands and said that the question "was not controversial until Mr. Ickes suddenly, and overnight as it were, undertook to change the policy of the Federal government and his Department of

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Interior."

Senator Donnell (Rep., Mo.) admitted that Ickes had reversed his original stand that the lands belonged to the states, but declared that the former Interior Secretary, who resigned because of the Pauley controversy, "discovered in time that humanity is fallible and that he had erred in his earlier conclusion."

Donnell joined Barkley in the contention that the question of state or Federal ownership should be determined in the court action, in spite of the fact that the Senate Judiciary committee, in reporting the bill, pointed out that an unbroken line of court decisions had upheld state sovereignty over the lands in question.

"Regardless of friction that has developed in the court," Donnell said, "the people of the United States can and do look to the court."

He pointed out that the present court contains among its membership distinguished jurists and added that he had faith that its future membership would continue in the same tradition.

The War Assets Administration has reported that it has received seven proposals to purchase and three to lease the Big and Little Big Inch Pipe Lines, extending from the Texas to the New York-Philadelphia area. Four of the seven prospective buyers expressed an intention to use the lines, in whole or in part, as oil carriers; two contemplated the transmission of natural gas; and one proposed to remove and relocate one of the lines as an oil carrier.

While the oil industry as a whole has been holding the price line in keeping with the request of President Truman and pending final action on the price control bill, the conference committee between the House and Senate continued to bicker over the inclusion of a specific provision exempting petroleum and petroleum products from price controls.

The provision was placed in the Senate version of the bill on the motion of Senator Moore (Rep., Okla.) on behalf of himself and Senators Thomas (Dem., Okla.), O'Mahoney and Robertson (Dem. and Rep., Wyo.), Reed and Capper (Rep., Kan.), Eastland (Dem., Miss.), O'Daniel (Dem., Texas), Willis (Rep., Ind.), and McClellan (Dem., Ark.).

Adopted by a vote of 40 to 30 in a night session of the Senate, the petroleum amendment read as follows:

"Nothing contained in this act shall be construed to authorize the Administrator to impose or maintain price controls with respect to petroleum and petroleum products processed or manufactured in whole or substantial part from petroleum unless the Price Decontrol Board established under subsection (h) shall have first determined and certified in writing to the Administrator that the supply of crude petroleum or the particular petroleum product on which price controls are to be imposed or maintained, is insufficient to meet the domestic consumptive demand therefore."

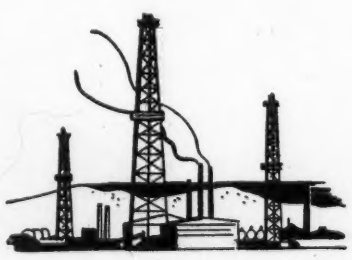
As finally adopted by the conference committee, petroleum will remain free from price controls until such time as the Decontrol Board and the OPA Administrator might agree to restore ceilings on it. Three standards were set up for the Decontrol Board which would permit it to restore controls only if:

1. The price of a commodity has risen unreasonably above the ceiling price in effect June 30, 1946, plus the amount per unit of any subsidy paid prior to June 30. This standard applies mainly to foodstuffs.

2. The commodity concerned is scarce and recontrol is "practical and enforceable."

3. The public interest will be served by such recontrol.

The bill is expected to go back to the House and to be approved, although reluctantly, by President Truman before the end of the present session of Congress. Mr. Truman previously vetoed a watered down extension of OPA on the grounds that such an extension was worse than no price control.



The conferees also made a minor change in a pricing provision which the Senate had inserted in the bill as a substitute for the amendment by Senator Taft (Rep., Ohio), which Mr. Truman had criticized in his veto message as the "most damaging" of the provisions of the original extension bill.

As it came out of the conference this provision still contained discretionary authority for the OPA against which Taft had protested vigorously on the Senate floor. Under it, the agency could make "reasonable adjustments" to meet abnormal production.

In cases where ceilings were high enough to cover costs, it could refuse to raise them if this would not boost production or would reduce production of other necessary items.

Senate Majority Leader Barkley (Dem., Texas) said in response to a question that he had every hope that President Truman would sign the compromise version of the extension legislation, but he added that he did not have any assurance as to the President's views on it.

"I have every hope that he will sign it," he said. "That is based on my desire as much as anything else."

OPA Administrator Paul Porter, who remained at the Capitol during most of the final day of the conference, was reported to have recommended to the President that he accept the compromise measure as the best that could be obtained under present legislative conditions.

The President was said by a high official on Capitol Hill to have intimated that while he did not like the compromise because it was too weak, he would accept it if that was the only way to bring the OPA back to life.

The compromise bill was favored by Senators Barkley, Downey (Dem., Calif.), Taft and Radcliffe Dem., Md.). Senators Wagner (Dem., N. Y.) and Millikin (Rep., Colo). opposed the measure. Senator Tobey (Rep., N. H.), another member of the committee, was absent.

South Coles Levee Unit Pressure Maintenance and Cycling Project

By
L. P. FOOTE
South Coles Levee Field

July Meeting

The South Coles Levee Field is located about twenty-five miles southwest of Bakersfield in Kern County, California. It has a known areal extent of about 3600 acres, situated in Sections 2, 3, 4, 5, 8, 9, 10, 11, 12, 14, and 15, T. 31 S., R. 25 E., M.D.B. & M.

The field was discovered as a result of seismograph exploration and the completion of The Ohio Oil Company's KCL-F No. 1 on November 11, 1938. This well is located in the eastern part of Section 10, and is now known as SCLU 74-10. Initial production was 885 bbls. of clean, 44.5° A.P.I. gravity oil and 5,600,000 cubic feet of gas. The top of the producing zone in this well was at 9240 feet and the total depth is 9365 feet.

Core analysis and interpretation of the electric log resulted in the identification of the producing formation as the Stevens Zone. The Stevens Zone was first discovered and named by the Shell Oil Company in the Ten Section Field. This zone is of the upper Miocene Age, and consists of sands of varying permeability, containing many lenses of shale and silt, few of which have any appreciable areal extent. Permeability of the sands ranges from almost zero to more than 1000 millidarcys and shows no regularity of gradation from well to well. Porosities average about 20 per cent. The Stevens Zone has been found productive in the following major oil fields: Canal, North Coles Levee, South Coles Levee, Elk Hills, Greeley, Paloma, Strand and Ten Section.

The South Coles Levee structure is anticlinal with the main axial trend being almost due east and west. Little is known regarding the structural closure west of the crest. Inasmuch as the sands become too tight to be productive a short distance west of the structural high, no wells have been drilled to delineate the structure in this area.

The top of the producing zone was reached at about 8400 feet in the highest wells and at 9963 feet in the lowest producing well. Productive sand thickness ranges from about 100 feet to more than 400 feet.

Development of the field proceeded in an orderly manner, and by February, 1942, fifty-five wells had been drilled by the five operators in the field. These operators are:

The Ohio Oil Company, Richfield Oil Corporation, Standard Oil Company of California, Tide Water Associated Oil Company, Union Oil Company of California.

There were no wells drilled during the remainder of 1942 nor in 1943. Development was resumed in April, 1944, after the consummation of the South Coles Levee Unit Plan. Since that time, twelve wells have been completed, bringing the total of completed wells to sixty-seven. Of this number, only two dry holes have been drilled, namely, 56-2 and 72-14, both of which are outside of the unitized area.

Development of the field has shown that its area is divided almost equally between black oil and condensate production. The condensate area occupies the higher parts of the structure down to a depth of 9300 to 9400 feet. Wells completed below this depth produce black oil. Most of the wells in this latter group are in the eastern half of the field.

Under initial reservoir conditions, the pressure was about 4200 lbs. and the temperature was 235° F. Laboratory tests performed on re-combined trap samples of the gas cap material indicated that these hydrocarbons probably were in the gaseous phase under these conditions. The material exhibited retrograde characteristics, and seemed to be at the dew point. Initial producing gas-oil ratios were about 10,000 cubic feet per barrel, and the gravity of the liquid was sometimes as high as 60° A.P.I.

The oil from the black oil area averages about 35° A.P.I., and under initial conditions producing gas-oil ratios were about 1000 cubic feet per barrel. It is believed that the oil was at the bubble point under initial reservoir conditions.

As soon as the character of the gas cap material was recognized, the operators in the area began to give consideration to the feasibility of gas cycling to prevent loss of liquid recovery, due to pressure decline in the reservoir. It was decided that a study should be made to determine the best possible course to follow in producing the field.

This study was delegated to a group of petroleum engineers and geologists, representing the various operators in the field. All available pertinent data were assembled for a thorough analysis by the group. These data included well logs, histories, core analyses, subsurface pressure records, production tests, P.V.T. report, etc.

Results of the study indicated that most of the evidence favored the institution of a cycling program for the gas cap. This was to be carried on concurrently with a pressure maintenance program in the black oil area.

Engineering and geological studies were reviewed with great care by the field operators. The result was that the operators agreed that unitization of the field was necessary in order to carry out the cycling and pressure maintenance plan in the most efficient manner.

Having agreed that unitization was necessary and advisable, the

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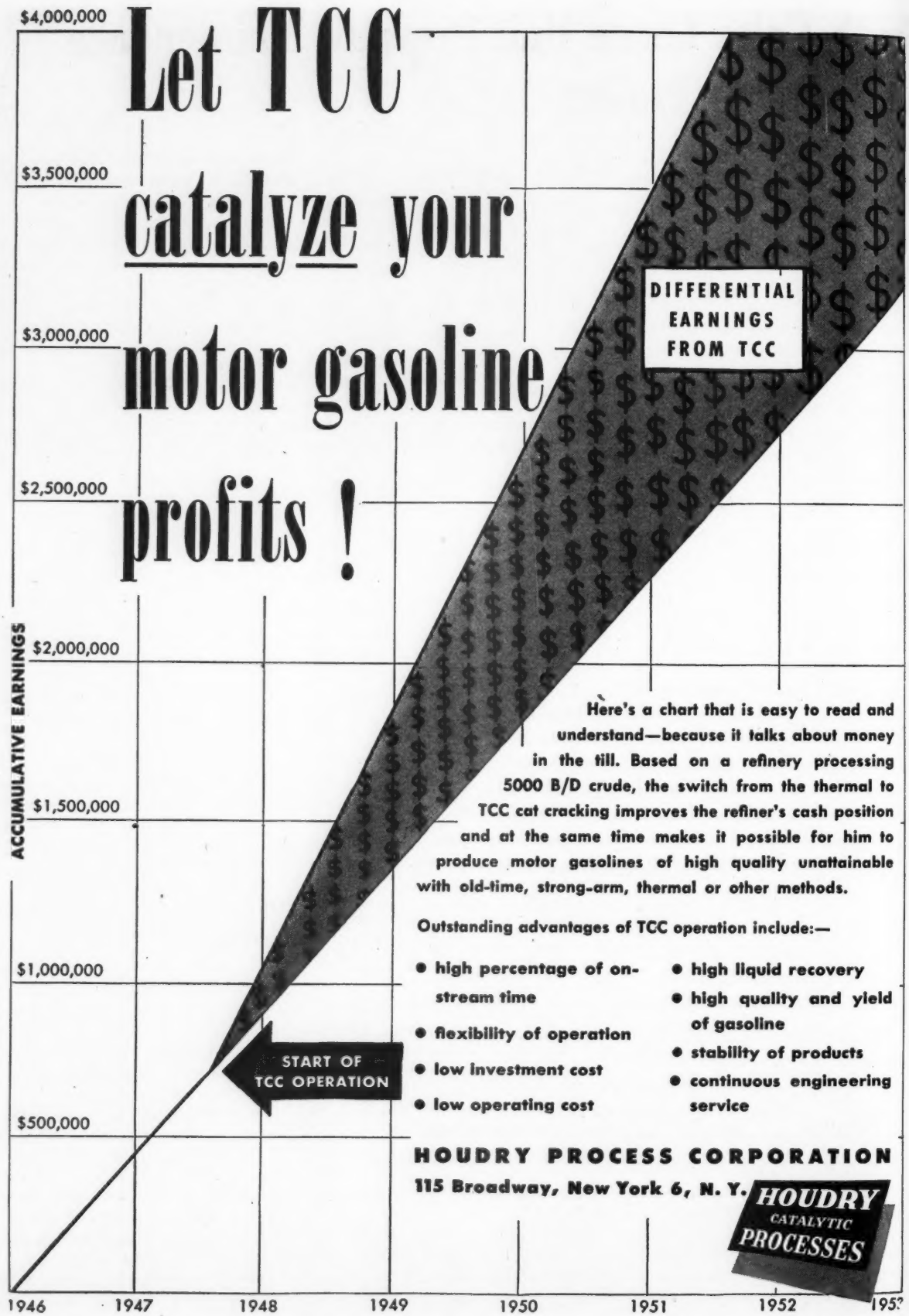

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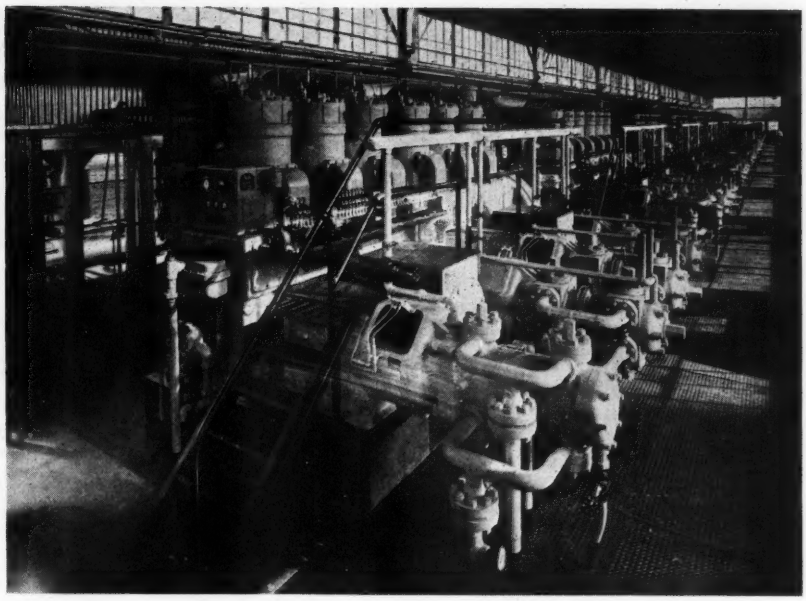
five operating companies, after some months of negotiation, formulated and executed, with the consent of their common lessor, the South Coles Levee Unit Plan.

As you are all familiar with the provisions customarily found in a unit agreement, it is not believed necessary to outline the terms and conditions of the Plan. Suffice it to say that it contains the customary number of "whereases" which the lawyers always seem to insist upon. You may be interested, however, in a brief description of the method and manner in which the plan is administered and operated.

In the administration of the Unit, the five Participants, each acting through its duly appointed representative, make all determinations of a major character, such as the time and location of the drilling of additional development wells; designation of wells to be used for production and those to be used for injection; the cost, nature and size of any plants, facilities or equipment, other than wells; the purchase of make-up gas; the abandonment of wells; change of Operator; and any additional matter or matters necessary or proper in accomplishing the objectives of the agreement. All such determinations are made by vote of the Participants, each acting through its duly appointed representative. Subject to and in accordance with the directions and instructions of the Participants, the Operator performs all operations respecting the Unit Zone within the Participating Lands, including the drilling and operations of wells, and the construction, maintenance and operation of plants and other facilities. The Ohio Oil Company is the Operator designated in the Unit Plan.

The South Coles Levee Unit Plan went into effect on March 1, 1944. Prior to this date, while negotiations were progressing toward unitization, the petroleum engineers, plant engineers and geologists of the five operators were in almost continual session. These men were working out the many technical problems involved in getting field operations coordinated, and in laying out the plans of operation.

Tests were made on all gas cap wells to determine the amount of wet gas available at various well head pressures. The information obtained from these tests was essential to the plant engineers for plant design purposes.



In the compressor building are nine 600 h.p. two-cycle, gas engine driven compressors, each machine having four compressor cylinders and serving two or more services.

Estimates of the amount of available gas from the black oil area were necessary and had to be projected into the future, since it was planned that the plant should be so designed that it would become an integral part of the production program for the field, and not primarily a gasoline plant.

A development plan for the field was worked out in an attempt to provide an adequate drainage pattern with as few wells as possible. Since the field had been developed in a more or less competitive manner, there were more wells than necessary in some areas, and not enough in others.

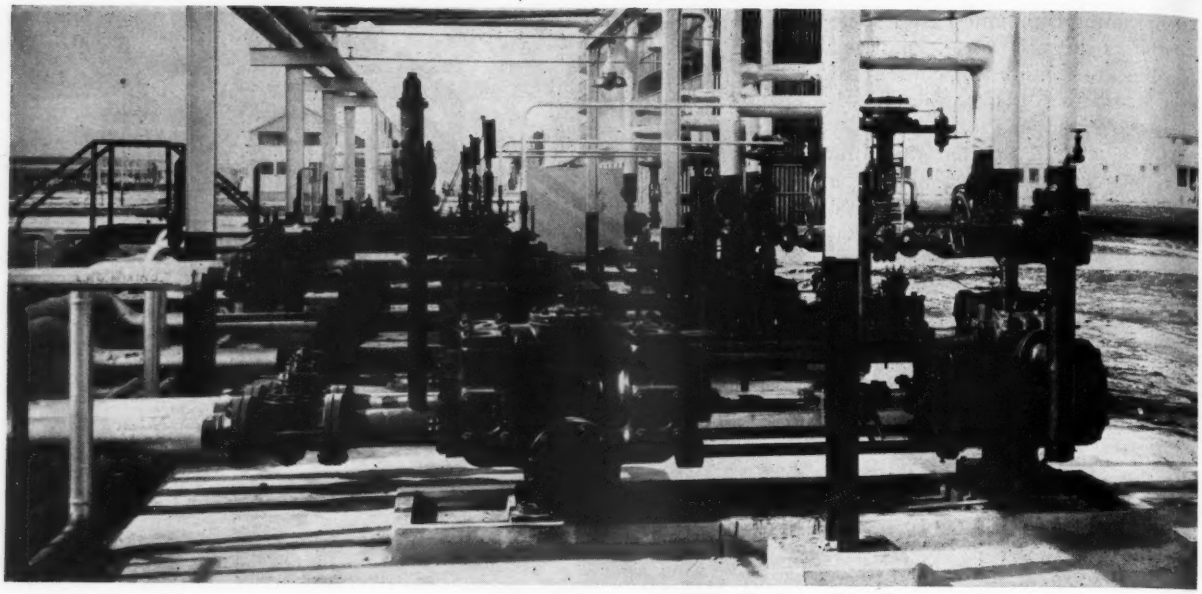
Injection wells had to be chosen, injection pressures estimated, and well head equipment, casing and tubing strings inspected and analyzed for the purpose of determining if the equipment were adequate to operate under injection conditions.

Laboratory analyses of representative well streams were necessary to aid the plant engineers in working out process problems.

Various systems of laying out injection lines and flow lines were considered from the standpoint of efficiency and conservation of critical materials.

From these investigations, the following conclusions were reached, and approved by the field operators:

1. A cycling plant should be built, capable of processing about 50,000,000 cubic feet of gas cap gas and 10,000,000 cubic feet of black oil gas.
2. Initial plant intake pressures should be 1500 lbs. for gas cap gas, and 450 and 60 lbs. for black oil gas.
3. The plant should be designed for 4000 lbs. injection pressure, although it was estimated that 3750 lbs. would probably be the maximum pressure required.
4. Five injection wells were chosen. Analysis of well equipment showed that three of them would need additional work to equip them for injection service.
5. It was decided that the field injection system would consist of a main injection header with laterals running to the individual wells.
6. The production system from the gas cap wells to the plant would consist of individual flow lines, with regulating and



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metering facilities at the plant.

7. The plant should be capable of producing the following products:
   propane
   iso-butane
   normal butane
   natural gasoline
   de-butanized condensate.

The foregoing program has been fulfilled in all respects. The originally proposed drilling program has been changed from time to time to meet newly discovered conditions. The status of the sixty-seven wells completed to date is as follows:

Black oil wells	38
Condensate wells	21
Injection wells	5
Idle, non-commercial wells	1
Abandoned wells	2
Total	67

The South Coles Levee Cycling Plant

The flow cycle for the cycling plant was developed by the plant engineers. This group is composed of engineers from the participating companies who were appointed by the managers of their respective companies.

The plant engineers' first assignment was to develop a flow cycle for a cycling plant to handle 50,000,000 cubic feet per day of flash gas from the condensate area, and 10,000,000 cubic feet per day of black oil production gas. This work was started in January, 1943. It was completed and submitted to the contractors for bids in January, 1944. It was also the duties of the engineers to select the plant equipment and also to analyse the bids received from the contractors. The results of their analysis of the contractors' bids were submitted to the managers group who selected the contractor.

The contract for the construction of the Cycling Plant and Field Lines was signed in September, 1944, and the construction work started at that time. The plant was completed and placed in operation on November 24, 1945.

The plant is of the oil absorption type with a processing capacity of 60,000,000 cubic feet per day of wet gas. Under present operating conditions the overall plant recovery is 98% of the normal butane, 88% of the iso-butane, approximately 30% of the propane and all of the pentane and heavier fractions at present load conditions.

Approximately 45,000,000 cubic feet per day of wet gas enters the high pressure absorber operating at 1500 lbs. The gas rate to the high pressure reabsorber is 15,000,000 cubic feet per day. This vessel operates at 450 lbs. The low pressure reabsorber operates at 175 lbs. and processes approximately 1,000,000 cubic feet per day. The residue gas from the 450 lb. reabsorber and the 1500 lb. absorber amounts to approximately 54,000,000 cubic feet per day. This gas is taken through the gas engine driven compressor units to the injection wells. The gas from the 175 lb. reabsorber is burned as plant fuel.

At rated capacity the plant is expected to recover approximately 7000 barrels per day of liquefied products, namely, 4650 bbls. of 50° A.P.I. debutanized condensate, 715 bbls. of natural gasoline, 660 bbls. of normal butane, 440 bbls. of iso-butane and up to 600 bbls. of propane.

Field System

The field line system is designed to transport the gas from 16 producing wells to the plant. However, the number of producing wells will increase as the drilling campaign is completed. Each production well has a separate flow line to the plant where the well effluent is measured through an orifice meter. The production lines are of 3 inch and 4 inch Grade B pipe. The maximum pressure drop allowed in any producing line is 100 lbs. from the well to the plant. The longest production line is 7000 feet. The production lines are designed for a working pressure of 3000 lbs. at 160° F. These lines operate at full well head pressure with all pressure reduction taken through a flow bean at the plant. It was thought not advisable to take any pressure reduction and consequent temperature reduction at the well because of the possibility of hydrate formation. All production and injection lines are insulated and carried on concrete piers with expansion loops approximately every 1000 feet.

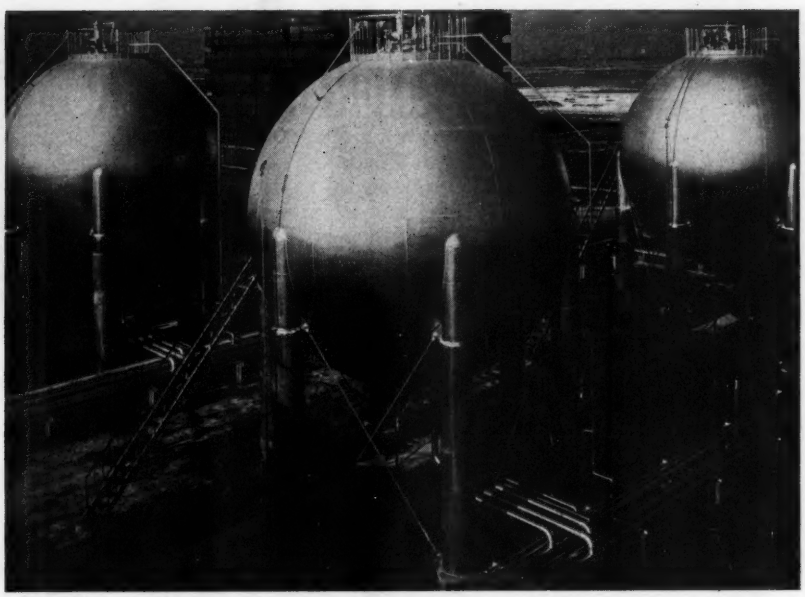
The injection system is of the main header type, a single line running through the field with branches to each injection well. An orifice meter is installed on each of the branch lines. The injection wells are located along the high of the structure. The injection system is

An unusual part of the compressor plant, from a design standpoint, is the suction and discharge piping. The pipe is securely fastened to concrete piers with special type clamps as here shown.

designed for 4000 lbs. at 180° F. Each injection well is equipped with a check valve at the well head. The branch lines to the injection wells are of 3 inch and 4 inch pipe. The main injection header is 8 inch, Grade B, 1⅛ inch wall pipe at the plant, and grades down to 4 inch Grade B, Schedule 120 pipe. Expansion bands are installed at every well, both production and injection, to eliminate the possibility of transmitting any stress from the lines to the well heads.

High Pressure Gas System Within the Plant

The flow sheet (Fig. 2) illustrates the flow of gas and liquids through the plant and will be referred to in the following discussion. The production gas arrives at the plant at pressures varying from 1800 lbs. to 2600 lbs. and temperatures from 110° to 140°F. The pressure is reduced to 1800 lbs. by passing the gas through a flow bean before it reaches the production header. This header is designed for a working pressure of 3000 lbs. In the production header all the condensate wells' effluent is commingled. The gas and liquid then flows through a pressure reducing regulator which is controlled by the pressure in the 1500 lb. absorber residue scrubber. The purpose of this regulation valve is to reduce the pressure to 1500 lbs. and hold a constant pressure on the high pressure absorption system. After passing the pressure reducing valve, the gas flows through cooling coils where the temperature is reduced to 90°F. From the coolers the gas flows to the high pressure gas separator which is 54 inches in diameter by 15 feet high, with a design working pressure of 1600 lbs. The liquid continues into the fractionation system which will be discussed later. The gas from the 1500 lb. separator flows directly to the high pressure absorber which is 66 inches diameter by 75 feet high, having a shell thickness of 3 7/16 inches. This vessel has 30 trays on 24 inch centers. Here the gas is contacted with sufficient absorption oil to get the desired recovery of the heavier hydrocarbons. The gas then flows into the high pressure residue scrubber before going to the second stage repressure compressors. The high pressure absorber residue scrubber is equipped with a mist extractor, high liquid level alarm and a high liquid level shutdown switch to ground the magnetos on the compressors. Any liquid carry-over from the high pressure absorber is thus prevented from reaching the compressor cylinders. This feature is also installed on all compressor suction scrubbers. After leaving the high pressure compressor cylinders the gas is cooled from 225° to 165° F., and is returned to the sand through five injection wells. A check valve is installed in the injection line near the plant to prevent any back flow of gas from the injection line should this system fail in the plant. The compressors are installed to deliver 54,500,000 cubic feet per day of absorber residue gas to the injection system at 4000 lbs. The eight installed compressor services vary in suction pressures from 6 inches vacuum to 1500 lbs. and in discharge pressures from 30 lbs. to 4000 lbs.



The legs of the spherical tanks are insulated with magnesia blocks and covered with galvanized iron for fire protection.

Black Oil Production Gas

Gas from the black oil production is brought to the plant at three different pressures; namely, 450 lbs., 60 lbs., and 6 inch vacuum. The 450 lb. black oil gas flows to the 450 lb. separator where it commingles with the condensate flash gas. The mixed gas stream flows into a high pressure reabsorber which is 60 inches diameter by 63 feet high, with 24 trays on 24 inch centers. The bottom section of this vessel is used as a 450 lb. flash tank for the rich oil from the base of the high pressure absorber. In this vessel, the combined gas stream is contacted with the required absorption oil. The gas then flows to the 450 lb. reabsorber residue scrubber before going to the first stage repressure compressors, which have a suction pressure of 430 lbs. and discharge pressure of 1510 lbs. From here the gas flows through a cooling coil where the temperature is reduced from 275° to 90° F., and thence to the high pressure absorber residue scrubber. Here it is mixed with the residue gas from the high pressure absorber.

The 60 lb. black oil gas flows into the 60 lb. trap as does the condensate from the 450 lb. trap. Here the 60 lb. black oil gas is commingled with the flash vapors from the 60 lb. condensate. This 60 lb. trap also serves as the liquid charge tank for the crude debutanizer column. From here the gas flows to the first stage of the low pressure gas compressor and is compressed to 180 lbs. The gas is again boosted, after cooled, and flows through a final accumulator to the 450 lb. reabsorber. To complete the compressor services, the fixed gases from the stripper reflux accumula-

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Pulsative flow in gas, air and vapor lines doesn't limit its effects to visible or audible vibration in plant buildings and equipment, or to inaccurate orifice meter readings. It also wastes power because compressors must overcome the reflection of the pulsation cycle in addition to keeping the gas stream moving forward.

For example—Tests conducted recently by a Natural Gas Company showed a horsepower loss of 10.3% on the crank end and a loss of 12.4% on the head end of its compressors. After installing FLUOR Pulsation Dampeners on discharge lines, *this power loss was reduced 76% on the crank end and 53% on the head end.* By eliminating pulsative flow and its adverse characteristics, the FLUOR Pulsation Dampener quickly pays for itself through the saving it effects in power cost. Only 24 hours were required to make this installation.

The FLUOR Pulsation Dampener has no moving parts. It operates with beneficial effects on friction losses, horsepower savings and rate of flow. If vibration plays *tricks* in *your* plant, it may be due to pulsative flow in air, gas or vapor lines. In that case, the FLUOR Pulsation Dampener is your answer.

BE SURE WITH FLUOR SINCE 1890

FLUOR PULSATION DAMPENER

THE FLUOR CORPORATION, LTD. 2500 South Atlantic Boulevard, Los Angeles 22
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ENGINEERS • MANUFACTURERS • CONSTRUCTORS

tor, the hot rich oil vent tank, and the crude rectifier reflux accumulator are commingled. These three gases are at approximately the same pressure, which renders them suitable for one compressor service. The first stage recompressor picks up the combined three streams at 70 lbs. and discharges at 190 lbs. Before this gas enters the cooler, the overhead liquids from the stripper and crude rectifier are blended with this gas for the sponge effect. From this cooler, the liquid and gas goes to the depropanizer charge tank which also serves as a gas separator for the second stage recompressor. This service takes the gas at 185 lbs. and discharges at 450 lbs. The gas then flows through a cooler, an accumulator, and thence to the 450 lb. reabsorber.

One compressor cylinder handles vapors from the black oil storage tanks in the field and from the debutanized condensate storage tanks at the plant. This gas is taken through the vacuum gas liquid accumulator, thence through two stages of compression to the 175 lb. reabsorber. The residue gas from this vessel flows directly to the plant fuel system. The 175 lb. reabsorber vessel is 36 inches diameter by 38 feet high, and has 16 trays on 18 inch centers.

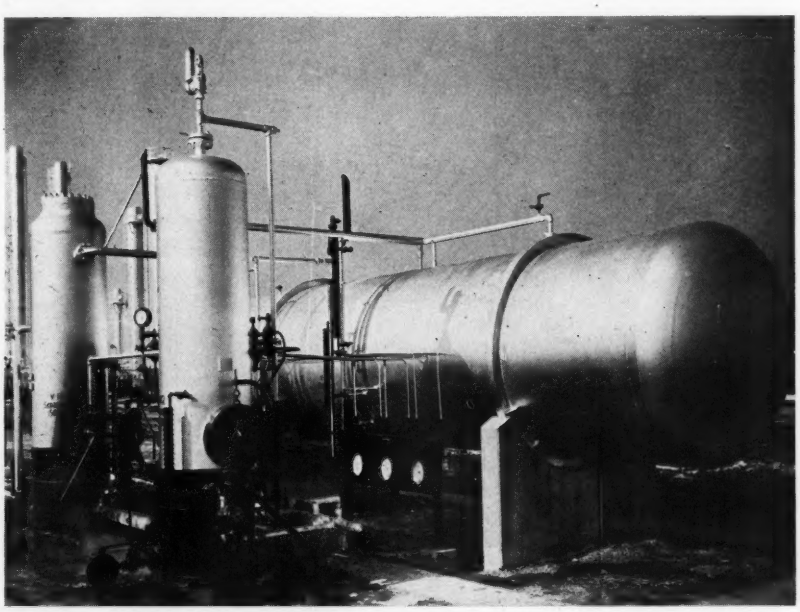
Absorption Oil System

The flow of lean oil from the high pressure absorber has been discussed in the two preceding sections, but to clarify this point, it will be reviewed briefly.

The rich absorption oil flows from the base of the 1500 lbs. absorber through a liquid level control valve into the base of the 450 lb. reabsorber, where the flash gas is liberated. The rich oil from the base of this reabsorber also flows through a liquid level control valve into a 5 foot diameter by 10 feet long horizontal flash tank. The flash gas then flows into the base of the 175 lb. reabsorber where it is mixed with the compressed gas from the vacuum system. The rich oil from the base of this vessel also flows to the 175 lb. rich oil flash tank mentioned above. From this flash tank, the rich oil flows counter current through the absorption oil heat exchangers. Here the temperature of the rich oil is increased from 95° to 404° F. The oil then flows to the hot rich oil flash tank. The liquid leaving this vessel flows to the fired heater where the temperature is increased to 500° F. The hot rich oil then flows to the Stripper where the absorbed material is stripped from the oil. The hot lean oil then flows through the absorption oil exchangers where the temperature is reduced from 482° to 137°F; then through the lean oil coolers for final cooling to 80° F. From here, the oil flows to the lean oil surge tank, which is 10 feet diameter by 30 feet long. This surge tank allows approximately 20 minutes detention time for any entrained water to settle. The 270 gpm of lean oil is pumped to the 1500 lb. absorber with three 3½ x 12 horizontal duplex, outside packed plunger pumps. Each pump is driven by a 4 cylinder 185 hp, 4 cycle natural gas engine. The size of these pumps was selected and the pumps geared to the engines in such a ratio that any two pumps can deliver the required quantity of lean absorption oil at rated engine speed. The lean oil for the 450 lb. and 175 lb. reabsorbers is pumped with a turbine-driven, 6 stage, centrifugal pump. There are two identical pumps and turbines for this service, either one of which can furnish the required 230 gpm of oil.

The stripper column operates at 85 lbs. From the bottom of this column is drawn a lean oil with a relatively low vapor pressure. The overhead product is raw natural gasoline. To meet the two above requirements, all the internal reflux that reaches the first tray above the feed is drawn from the stripper. The stripper is 66 inches diameter by 52 feet high, and has 20 trays. There are eight trays on 18 inch centers in the rectifying section and twelve trays on 24 inch centers in the stripping section.

The side-draw stream from the stripper is charged to the fractionator. This feed consists principally of light absorption oil with some heavy gasoline and kerosene. In this column, three cuts are taken: stripped absorption oil out the bottom, kerosene from a side-draw, and natural gasoline overhead. The fractionator operates at 5 lbs. It is 36 inches diameter by 63 feet high, and has 24 trays at 18 inch centers. There are thirteen trays in the rectifying section and eleven trays in the stripping section. Four of the trays in the stripping section are below the internal heater. The kerosene side-draw connections are on the 7th, 9th, 11th, and 13th trays from the top. This type of fractionator operation has been successful in eliminating the light ends and con-



All lines from the production wells enter the test separator area where the production is metered and analyzed to determine the composition of the well effluent.

trolling the vapor pressure of the lean oil.

The total absorption oil circulation rate is approximately 500 gallons per minute. The make-up oil to the system is 80 gallons per day. The heavy ends picked up in the absorbers is 600 gallons per day.

An Oil Reclaimer is used to control the end point of the absorption oil. This vessel is located beside the Stripper. The feed to the reclaimer is from 3 to 5 gallons per minute, and taken from the 13th tray from the top of the Stripper. The rate of feed is controlled by a liquid level controller on the reclaimer. All the process steam used in the stripper first passes through the reclaimer. The partial pressure effect of the steam vaporizes the light ends and carries them back to the stripper. The heavy ends of the absorption oil accumulate in the reclaimer and are dumped periodically. This system has proved satisfactory for end point control.

Dulsation dampeners on all cylinders discharging at 1500 and 4000 lbs. were used in eliminating pipe vibration in compressor discharge lines.

Fractionation System

The raw condensate from the high pressure production gas is pumped from the 60 lb. trap into the crude debutanizer column through feed to bottoms exchangers. Here the temperature of the feed is increased from 97° to 250° F. From the base of this column, the debutanized condensate is drawn through the reboiler, heat exchanger, cooler, and thence to storage. The overhead vapors from this vessel are condensed and pumped into the recompressor interstage discharge line ahead of the cooler. Here they are blended with the condensable overhead product from the stripper. These two liquid streams along with the non-condensables, then flow to the depropanizer charge tank. The liquid is then pumped with a close clearance simplex pump to the depropanizer column through the feed to the bottoms exchangers. The charge rate to this column is controlled by a flow controller which regulates the steam to the charge pump. The depropanizer operates at 350 lbs. From this vessel the propane and lighter fractions are taken overhead and the condensables are pumped to the injection wells. Fixed gases are burned in the boilers and heater. For propane injection, a 22 x 4½ x 20 simplex outside packed plunger type pump is used. It is operated on 300 lb. saturated steam and the discharge pressure is 3750 lbs. For the recovery of propane, the depropanizer column is arranged with sidedraw connections on the 3rd, 5th and 8th trays from the top. The depropanized liquid flows from the base of this column through the reboiler and bottoms to feed exchangers. From these exchangers the liquid passes through the debutanizer bottoms to feed exchangers to the debutanizer column. This column operates at 150 lbs. Natural gasoline is drawn from the base of the debutanizer through the reboiler, heat exchanger, cooler, and thence to storage. The butanes are taken overhead, condensed and charged to the butane splitter column. The butane splitter operates at 115 lbs., is 66 inches diameter by 112 feet high, and has 65 trays on 18 inch centers. The iso-butane is passed overhead, condensed, and the net make sub-cooled before going to storage. The normal butane is drawn from the base of the column through the reboiler, cooler, and then to storage.

Steam Generating Plant

The steam requirements for the plant are 52,000 lbs. per hour. Steam is generated in two 800 hp boilers. The boilers operate at 300 lbs., are of the water-tube type, equipped with induced draft fans and have air cooled settings. The boiler steam pressure controller operates a pressure reducing valve in the fuel line. The induced draft fans are driven by steam turbines running at constant speed. Draft is controlled automatically and varies with fuel requirements and pressure differential across the tubes in the fire box. The steam balance is adjusted so there is a minimum of 300 lb. steam reduced through the pressure reducing valves for processing. Practically all the process steam is first used in the turbines or the reciprocating pumps. The turbine drivers of the 450 lb. lean oil pumps operate on 300 lb. inlet and 100 lb. exhaust steam pressures. This 100 lb. steam is used in the reboilers and for process stripping. All the reciprocating steam pumps operate on 300 lb. steam and exhaust into the 25 lb. oily steam system. The oily steam is consumed in the butane splitter reboiler and the fractionator column. The 25 lb. oily condensate from the butane splitter reboiler is drawn to the sewer.

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Reset control can be made reverse or direct-acting simply by reversing the position of two valves and two flappers (a one-minute operation). Reset can be made into throttling or vice versa by changing only two sub-assemblies.

Bulletin E-24 describes the instrument and its operation fully. It includes a cross-sectional drawing showing in colors the functioning of all parts. If you haven't yet received your copy, one will be sent you on request.

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the boiler feed is pumped from wells on the site. The hardness of the well water is 1 grain per gallon. The raw water make-up is 40% of the boiler feed water. The boiler feed water treatment is of internal type. During the first six months of operation, there has been no scale formation nor pitting.

Electric Generating Plant

To have available a dependable source of plant-power and to eliminate the installation of small internal combustion engines in hazardous areas an electric generating plant was built. In the generating plant there are four 250 kw, 2300 Volt, A.C. generators. These generators are driven by 8 cylinder, 4 cycle gas engines which operate at 400 rpm. To maintain constant speed, the fuel to each engine is controlled by a sensitive hydraulic governor. The governors have the speed droop feature. Three of the governors are set with some speed droop and one is set with no speed droop. The engine with no speed droop setting normally carries a small load. When additional load comes on the line, this engine picks it up immediately. Consequently, the low voltage period caused from additional load is short.

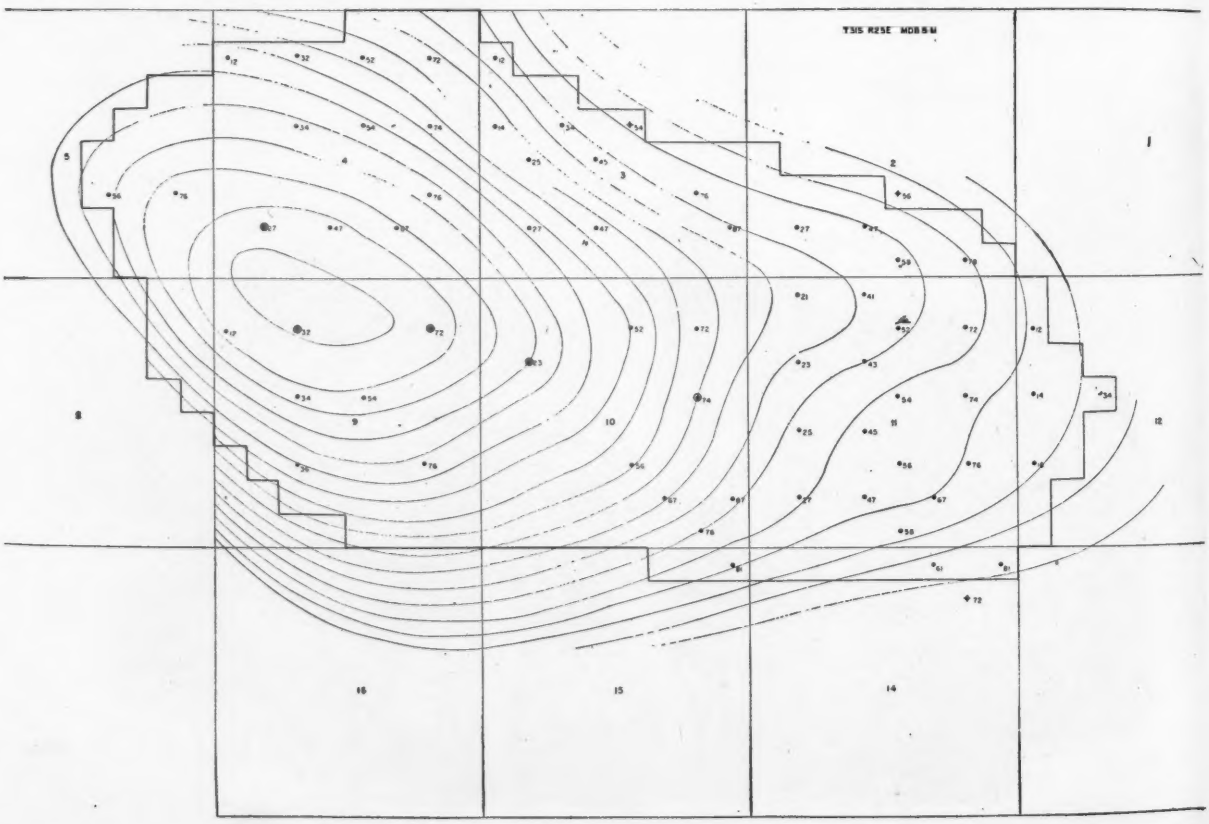
The main switch board is of the metal-clad dead-front type. Leads from each generator are equipped with reverse power relays. Should an engine die, its generator is automatically disconnected from the main buss to prevent motoring. The main board is equipped with automatic synchronization, individual voltage regulators, and remote speed control.

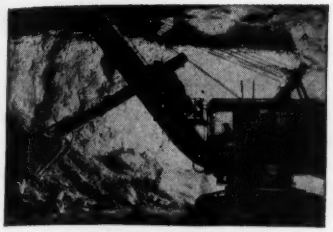
For further protection, an undervoltage relay is installed in the power circuit to the pipe line pumps. Should the voltage drop to 2000 volts, these pumps drop off the line and do not come back until reset by hand. The generators and drivers were selected so that any three can carry the full plant load. Most of the electricity is consumed at 2300 volts by the cooling tower, jacket water, and pipe line pump motors. The electricity is distributed through the plant at 2300 volts in underground transite conduits, which are encased in red concrete for protection and identification. All motors, 50 hp and above, operate at 2300 volts and those less than 50 hp operate at 440 volts. Transformers are located throughout the plant where voltage reduction is necessary.

Cooling Towers

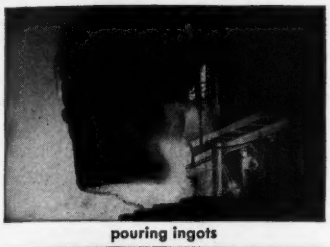
Separate atmospheric cooling towers are installed, one for jacket water cooling and one for process cooling. The jacket water cooling tower is 53 ft. high and 132 ft. long. This tower is designed to cool 5100 gallons per minute of water from 103° to 88°F. when the wind velocity is 1 mile per hour and the wet bulb 75° F. The jacket water cooling tower is used to cool the engine jacket water and the engine lubricating oil cooler water. The heat load on this tower is 38,000,000 Btu per hour.

The process cooling tower is 55 ft. high and 534 ft. long and is designed to cool 9000 gallons per minute of water from 96° to 80° F. when the wind velocity is 1 mile per hour and the wet bulb 75° F. All the gas cooling coils, overhead vapor condensers, and liquid coolers handling hydrocarbon products are installed in this tower. The heat load is 70,000,000 Btu per hour.

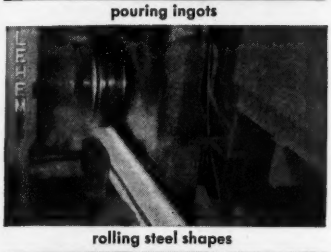




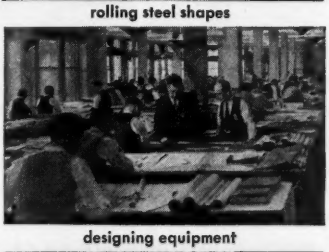
stripping iron ore



pouring ingots

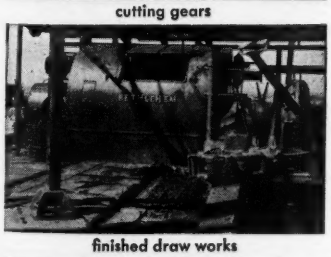


rolling steel shapes

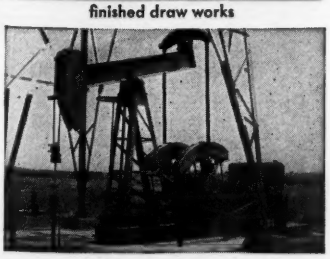


designing equipment

cutting gears



finished draw works



finished pumping unit

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Here's the picture in brief:

Bethlehem drilling and pumping equipment is made by an integrated, closely-knit organization that mines its own ore . . . makes its own steel . . . does its own rolling, forging, and casting . . . designs, machines, assembles, and services its own products.

Each step in the making of Bethlehem machinery is supervised by specialists who have devoted many years to the oil business. Behind them are the entire facilities of Bethlehem Steel Company. That's why every Bethlehem unit is soundly engineered, soundly manufactured; why it's durable, efficient, and long-lasting.

That's why, too, you can place complete reliance in a recommendation by Petroleum Equipment Company (Subsidiary of Bethlehem Pacific) and in the widespread Petroleum Equipment service organization, whose men are available at convenient points throughout the California oil fields.

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Compressors

In the compressor building there are nine 600 hp, two cycle, gas engine driven compressors. Each machine has four compressor cylinders and serves two or more services. The compressor cylinders are so arranged that there are one 1500 lb. cylinder and one or more 4000 lb. cylinders on each machine. The remaining throws are fitted with low pressure cylinders. This arrangement was necessary to keep the two high pressure services in balance from a capacity standpoint. All cylinders on the power and compressor ends are porous chrome lined. All rod packing is of the metallic bronze type. The compressor piston rings are of various materials; namely, micarta, cast iron, tinized cast iron, and bronze.

Button head grease gun fittings are installed on the oil lines from the lubricators to the piston rod packing. Should the rod packing heat, either when breaking in or because some foreign material has lodged under the packing, the operator attaches a grease gun to the button head fitting and flushes the packing with oil. This washes out the foreign material or cools the packing. The 1500 lb. and 4000 lb. cylinders are lubricated with a compounded oil.

The most unusual part of the compressor plant, from a design standpoint, is the suction and discharge piping. There are no expansion loops in the piping. The concrete piers are spaced from 6 to 8 feet apart and the pipe is securely fastened to each pier with special type clamps. The direction of the pipe movement determines the type of clamp used. There are three types of clamps installed, first, the anchor type, which is used to fasten the pipe rigidly to the anchor pier and does not allow movement in any direction; second, the linear expansion type, which allows the pipe to move longitudinally only, and is identical with the anchor type except that the tie-down bolts on one side are spring loaded; and third, the box type, which is a rectangular clamp with the anchor bolts spring loaded on one side to allow both longitudinal and lateral movement of the pipe.

All headers, both suction and discharge, which run the full length of the compressor building are securely anchored at the midpoint. As the temperature of the suction and discharge streams increases, these lines are forced to expend both ways from the anchor point. All other clamps on the headers are of the box type to allow the pipe to move longitudinally with temperature change and laterally as the lead-in and lead-out lines expand or contract. The box type clamps are also used on the compressor suction and discharge lines between the compressor building and the headers. Where a line changes direction, the box type clamps are used on the first two piers on either side of the corner.

Pipe vibrations in the 4000 lb. and 1500 lb. discharge lines have never been apparent. This was accomplished by the incorporation of five separate ideas in the design of the compressor piping:

1. The elimination of expansion loops by using the special pipe clamps.
2. Short pier spacing to keep all heavy valves and blind flanges close to supports.
3. Large suction and discharge lines which result in low gas velocities of from 5 to 6 ft. per second in the high pressure discharge lines.
4. Large suction and discharge chambers located close to the compression cylinders. The following chamber volumes were used (all volumes are stated as cylinder volumes): 1500 lb. suction, 19 volumes; 4000 lb. discharge, 19 volumes; 450 lb. suction, 12 volumes and the 1500 lb. discharge, 12 volumes.
5. The installation of a patented type pulsation dampener on all cylinders discharging at 1500 lbs. and 4000 lbs. One pulsation dampener takes care of from one to three cylinders depending upon how the cylinders are manifolded.

It is quite apparent that at high suction and discharge pressures, supercompressibility must be considered when calculating the volumetric efficiencies of the compressor cylinders. This is illustrated by the following data which are based on calculations and actual observations.

Comparison of Calculated and Actual Cylinder Capacities at 1500 lbs. Suction and 3750 lbs. Discharge

	Metered quantity at suction conditions (Supercompressibility considered in calculating orifice coefficient.)	Calculated Quantities		
		Supercompressibility considered. 1. To calculate cylinder volumetric efficiency. 2. To make allowance at suction conditions.	Supercompressibility considered only at suction conditions.	Conventional Method. (No supercompressibility considered)
M. Cu. Ft. per day	39,450	40,760*	36,000	29,435
Per cent of metered quantity	100.0	103.5	91.2	74.3

*Calculations made by using the method developed by Robert S. Ridgway, Standard Oil Company of California, presented before the California Natural Gasoline Association in Los Angeles, March 1, 1945.

• *These aren't ordinary tank cars at all, for if they were they'd arrive at their destination empty—perhaps blown up. They are really "pressure vessels on wheels", designed to keep these gases liquified while in transit by maintaining them under pressures up to 300 lbs. or more.*

If you've ever seen such a car the chances are that a Taylor Forge Nozzle provided the outlet, for a large percentage of them are so equipped. These nozzles present an interesting example of the many unusual forged and rolled steel products we are called upon to make for handling liquids and gases under pressure—an example of forging operations that have contributed so heavily to the sum-total of knowledge that enables us to provide extra value in Taylor products in general and WeldELLS in particular.

Yes, extra value in WeldELLS . . . . and here's why. To make the best Welding Fittings that can be made you have to know two important things:

1. What constitutes "the best" design.
2. How to make the metal go where you want it to go in forming so as to provide that design in the finished product.

On the first count Taylor Forge is fully qualified by more than 40 years of the closest association with the piping and pressure vessel fields. And on the second . . . . well, it is only the broadest experience in controlling hot metal under pressure and impact that enables us to provide in WeldELLS all of the features listed opposite—features that are combined in no other welding fitting.

Read the list, please, and we will believe you will agree that

WeldELLS have everything

WeldELLS alone combine these features:

- **Seamless** — greater strength and uniformity.
- **Tangents**—keep weld away from zone of highest stress—simplify lining up.
- **Precision quarter-marked ends**—simplify layout and help insure accuracy.
- **Selective reinforcement** — provides uniform strength.
- **Permanent and complete identification marking**—saves time and eliminates errors in shop and field.
- **Wall thickness never less than specification minimum**—assures full strength and long life.
- **Machine tool beveled ends**—provides best welding surface and accurate bevel and land.
- **The most complete line of Welding Fittings and Forged Steel Flanges in the World** — insures complete service and undivided responsibility.

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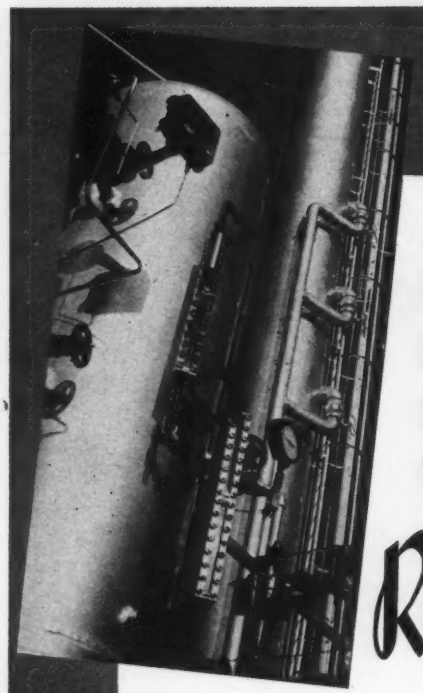

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. . . all of which can be constructed of special corrosion resisting materials, if desired. They're applicable to a wide range of temperatures and pressures. With such a variety of gages and gage-valves from which to select, we'll be glad to help you make the best selection for your different requirements. Write us in detail.

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Storage

The light products; namely, Natural Gasoline, Normal Butane, Iso-Butane, and Propane, are stored in spherical pressure tanks. The debutanized condensate is stored in atmospheric pressure cone-roofed tanks. The legs on the spheres are extended, placing the bottom of the tanks 9 feet above the top of the foundations or approximately 11 feet above the ground. This added elevation gives the necessary suction head for satisfactory pump operation. The legs of the spheres are insulated with magnesia blocks and covered with galvanized iron for fire protection. Each sphere is equipped with a ground reading gauge. There is sufficient storage to hold six days' plant production.

The plant products are shipped to the participating companies by either tank trucks or pipe lines. There are four pipe lines serving the plant.

Test Separator Area

All the lines from the production wells enter the plant at one point near the southeast corner. Here the gas from each well flows through its orifice meter, steam jacketed heater, flow bean, check valve and into the production header. The well effluent is metered at full well head pressure. The test separator header is manifolded to all the production lines. After entering the test separator header, the gas and liquid flow through cooling coils and to the 1500 lb. test separator where the gas passes overhead through an orifice meter and enters the 1500 lb. wet gas stream going to the high pressure absorber. The retrograde liquid or raw condensate is drawn from the base of this separator through a liquid level control valve. This liquid is then flashed in the 450 lb. test separator. The flash gas passes overhead through an orifice meter and continues to the 450 lb. reabsorber. The liquid is again drawn through a liquid level control valve and flashed in the 60 lb. test separator. From this vessel the 60 lb. flash gas passes through an orifice meter and continues on with the 60 lb. black oil gas to the plant. The 60 lb. trap is a horizontal vessel, 7 ft. diameter by 30 ft. long, with sufficient capacity to hold the raw

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The Progressive

UNION PACIFIC RAILROAD

ROAD OF THE Streamliners AND THE Challengers

condensate make from any well for a period of from 12 to 24 hours.

To check a gas-oil ratio the full production gas stream from a well is diverted through the test separator unit. The outlet temperature of the gas from the cooling coils is held constant for all tests. Volumes are recorded and gravities on the three gas streams are taken. The liquid is accumulated and measured in the 60 lb. trap. From these figures a gas-oil ratio and percent water cut is determined. Low temperature fractional distillations are run on a liquid and gas sample from each production well. To eliminate running a separate analysis on each of the three gas streams, a composite gas sample is taken. This composite sample is taken in absolute pressure increments proportional to the volume of each stream. By holding the final absolute pressure in the sample bomb below 300 lb. the effect of supercompressibility is small. A sample of 60 lb. liquid is taken and analyzed. The result of the two analyses are combined to determine the composition of the well effluent.

Gas-oil ratio tests are run on all production wells once each month. Fractional analyses were run on the effluent from each production well shortly after the plant started operating. These analyses are now run only when there is a change in a well's gas-oil ratio.

Emergency Shut Down System

The plant is equipped with two emergency shut-down systems; namely, primary and secondary. There are five shut-down stations throughout the plant from which the shut-down systems can be operated. Air pressure of 25 lbs. is maintained on these systems. The diaphragm or piston operated shut-down valves actuated by this system are made to operate by reducing the air pressure on the system. The two bleed valves at each of the five shut-down stations are equipped with cams so that the primary system is always made to operate first. Then if necessary, the secondary system can be operated.

The primary system performs the following operations on the processing equipment:

1. Shuts off all incoming gas to the plant except auxiliary fuel.
2. Shuts down the gas compressor engines and all lean oil pumps.
3. Shuts off the fuel gas to the rich oil heater and purges the fire box with steam.
4. Bleeds down the pressure on all 4000 lb., 1500 lb., and 450 lb. gas lines in the plant, including the 1500 lb. absorber and the 450 lb. reabsorber.

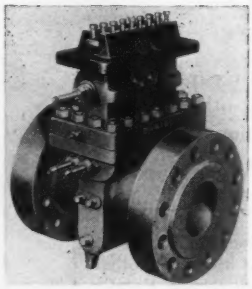
The secondary system performs the following operations on the utility equipment:

1. Shuts off the fuel supply to the steam boilers and purges the fire boxes with steam.
2. Shuts down the electric generator engines.

The above two systems are used for emergency shut-down only.

Fire Fighting System

Each debutanized condensate storage tank is connected by a 4 inch



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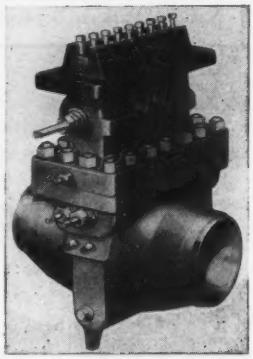

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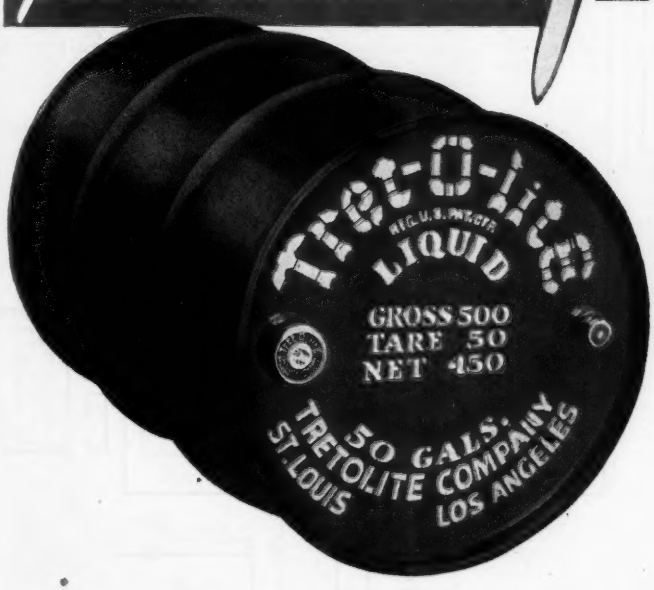

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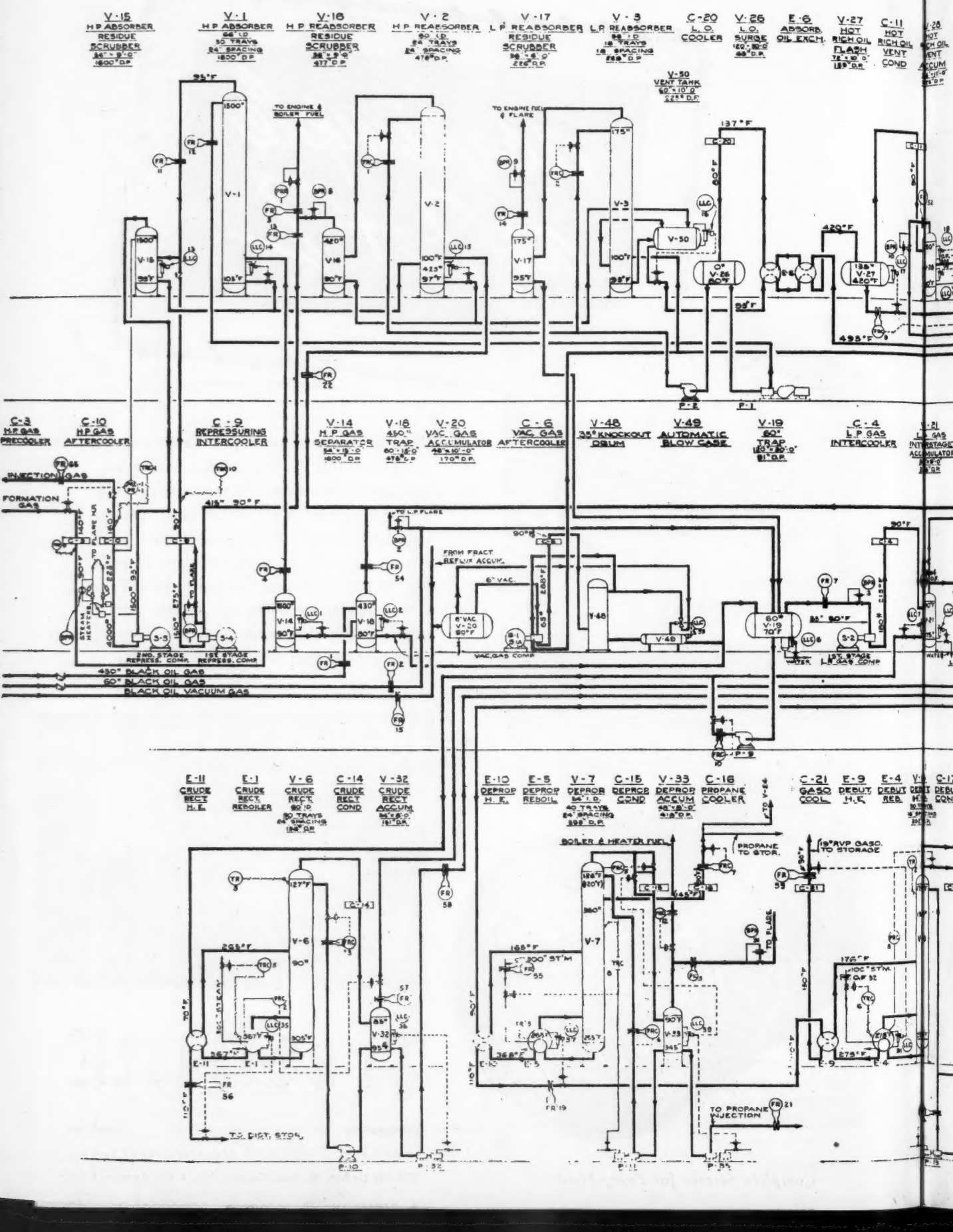

V-15 H.P. ABSORBER RESIDUE SCRUBBER 66" x 9'-0" 1800" D.P.
V-1 H.P. ABSORBER 66" I.D. 30 TRAYS 24" SPACING 1800" D.P.
V-16 H.P. REABSORBER RESIDUE SCRUBBER 36" x 9'-0" 477" D.P.
V-2 H.P. REABSORBER 60" I.D. 24 TRAYS 24" SPACING 476" D.P.
V-17 L.P. REABSORBER RESIDUE SCRUBBER 36" x 6'-0" 226" D.P.
V-3 L.P. REABSORBER 84" I.D. 18 TRAYS 18" SPACING 288" D.P.
C-20 L.O. COOLER
V-26 L.O. SURGE 120" x 30'-0" 48" D.P.
E-6 ABSORB. OIL EXCH.
V-27 HOT RICH OIL FLASH 72" x 10'-0" 189" D.P.
C-11 HOT RICH OIL VENT COND
V-30 VENT TANK 60" x 10'-0" 228" D.P.
C-3 H.P. GAS PRECOOLER
C-10 H.P. GAS AFTERCOOLER
C-9 REPRESSURING INTERCOOLER
V-14 H.P. GAS SEPARATOR 54" x 9'-0" 1800" D.P.
V-18 450" TRAP 60" x 15'-0" 478" D.P.
V-20 VAC. GAS ACCUMULATOR 48" x 10'-0" 170" D.P.
C-6 VAC. GAS AFTERCOOLER
V-48 35" KNOCKOUT DRUM
V-49 AUTOMATIC BLOW CASE
V-19 60" TRAP 120" x 30'-0" 81" D.P.
C-4 L.P. GAS INTERCOOLER
V-21 L.P. GAS INTERSTAGE ACCUMULATOR
INJECTION GAS
FORMATION GAS
TO ENGINE & BOILER FUEL
TO L.P. FLARE
TO FLARE
FROM FRACT. REFLUX ACCUM.
6" VAC.
2ND. STAGE REPRESS. COMP.
1ST. STAGE REPRESS. COMP.
VAC. GAS COMP.
1ST. STAGE L.P. GAS COMP.
430" BLACK OIL GAS
60" BLACK OIL GAS
BLACK OIL VACUUM GAS
E-11 CRUDE RECT. H.E.
E-1 CRUDE RECT. REBOILER
V-6 CRUDE RECT. 90" I.D. 30 TRAYS 24" SPACING 186" D.P.
C-14 CRUDE RECT. COND
V-32 CRUDE RECT. ACCUM. 84" x 8'-0" 181" D.P.
E-10 DEPROP H.E.
E-5 DEPROP REBOIL
V-7 DEPROP 84" I.D. 40 TRAYS 24" SPACING 398" D.P.
C-15 DEPROP COND
V-33 DEPROP ACCUM 48" x 8'-0" 418" D.P.
C-16 PROPANE COOLER
C-21 GASO COOL.
E-9 DEBUT H.E.
E-4 DEBUT REB.
BOILER & HEATER FUEL
PROPANE TO STOR.
18# RVP GASO. TO STORAGE
200# STM.
110# STM.
TO PROPANE INJECTION
T.O. DIST. STOR.
P-1
P-2
P-9
P-10
P-11
P-32
P-55

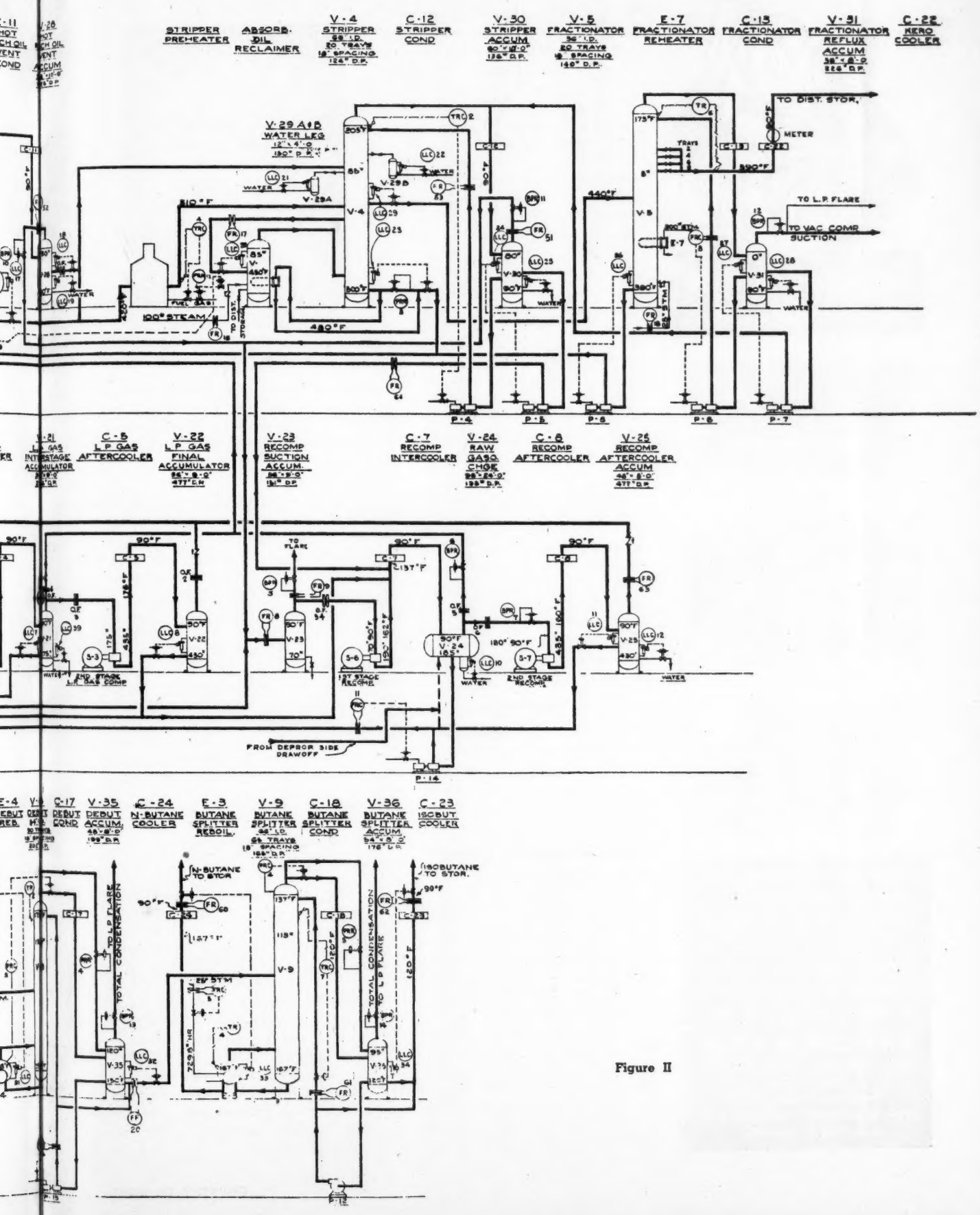
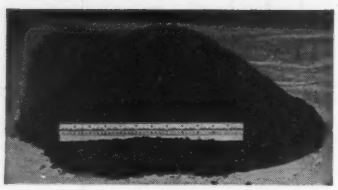

STRIPPER PREHEATER
ABSORB. OIL RECLAIMER
V-4 STRIPPER 68' I.D. 20 TRAYS 18" SPACING 124" D.P.
C-12 STRIPPER COND
V-30 STRIPPER ACCUM. 60'-0" 178" D.P.
V-5 FRACTIONATOR 36' I.D. 20 TRAYS 18" SPACING 140" D.P.
E-7 FRACTIONATOR REHEATER
C-13 FRACTIONATOR COND
V-31 FRACTIONATOR REFLUX ACCUM 38'-6"-0 226" D.P.
C-22 KERO COOLER
V-29 A&B WATER LEG
TO DIST. STOR.
METER
TO L.P. FLARE
TO VAC. COMP. SUCTION
100# STEAM
480°F
810°F
440°F
P-4
P-5
P-6
P-8
P-7
V-21 L.P. GAS INTERSTAGE ACCUMULATOR
C-5 L.P. GAS AFTERCOOLER
V-22 L.P. GAS FINAL ACCUMULATOR 86'-9"-0 477" D.P.
V-23 RECOMP SUCTION ACCUM. 38'-9"-0 131" D.P.
C-7 RECOMP INTERCOOLER
V-24 RAW GASO CHGE 86'-24'-0 135" D.P.
C-8 RECOMP AFTERCOOLER
V-25 RECOMP AFTERCOOLER ACCUM 46'-8"-0 477" D.P.
TO FLARE
1ST STAGE RECOMP.
2ND STAGE RECOMP.
2ND STAGE L.P. GAS COMP.
FROM DEPROP SIDE DRAWOFF
P-14
E-4 DEBUT REB.
C-17 DEBUT COND
V-35 DEBUT ACCUM. 48'-0"-0 199" D.P.
C-24 N-BUTANE COOLER
E-3 BUTANE SPLITTER REBOIL.
V-9 BUTANE SPLITTER 48' I.D. 68 TRAYS 18" SPACING 186" D.P.
C-18 BUTANE SPLITTER COND
V-36 BUTANE SPLITTER ACCUM. 84'-0"-3" 176" D.P.
C-23 ISOBUT. COOLER
N-BUTANE TO STOR.
ISOBUTANE TO STOR.
TOTAL CONDENSATION TO L.P. FLARE
P-12

Figure II



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pipe line to a permanent foam generating plant. The foam generating plant is located on the plant fire line and at a safe distance from the tanks.

Water for fire fighting purposes is supplied throughout the plant in an underground gridiron type system. Throughout the system, block valves are placed so any section of the line can be taken out of service without rendering the rest of the system inoperative. The fire pump is a turbine driven centrifugal type with a capacity of 750 gallons per minute at 150 lbs. pressure. This pump is automatic in operation. A 1 inch line from the 60 lb. utility water system maintains pressure on the fire system. Whenever a fire hydrant is opened and the pressure in the fire system drops below 40 lbs., the fire pump comes on and maintains 150 lbs. on the system until it is shut off and is reset by hand.

A gas engine driven turbine pump is installed in one of the two water wells for starting up, fire fighting, and stand-by purposes. This pump will deliver 500 gallons of water per minute at 150 lbs. pressure. The gas supply to this engine is independent of the plant.

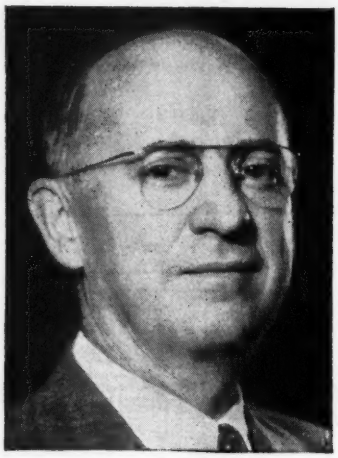
Portable fire extinguishers are placed at convenient points throughout the plant.

Contractor

The contractor in charge of the construction of the South Coles Levee Cycling Plant was The Fluor Corporation, Ltd., of Los Angeles, California.

Evleth Elected President of Ray Control Co.

In line with a general expansion program, Everett B. Evleth, one of the most prominent executives in the instrument manufacturing business in the United States, has been named president of Ray Control Company of Pasadena. Mr. Evleth was formerly vice-president and general manager for 8½ years of Brown Instrument Company of Philadelphia, and previous to that was vice-president in charge of the Middle West sales zone for Minneapolis-Honeywell Company, a company with which he was associated for 13 years. During the war, he was a member of the Industrial Instrument Industry Advisory Committee of the War Production Board.



E. B. Evleth

"Plans for general expansion of Ray Control Company, with emphasis on exploring the possibilities of spectroscopy, including electronic recording and other scientific fields are under way," Mr. Evleth stated. "Ray Control Company is a wholly owned subsidiary of Lane-Wells Company, a leader in technical oil field services and manufacture, and the research department of Lane-Wells has been combined with Ray Control. During the war, Ray Control manufactured many different types of lenses, prisms, optical elements and instruments for the U. S. Navy."

Fulkerson Represents Vernon Tool

Vernon Tool Co., Ltd.,announces the appointment of the Robert V. Fulkerson Company as California distributor of its oil field products including McNeely Vibrating Mud Screens, Vernon-Corwin Desanders, Vernon-Knowlton Packers, Liner Hangers ,and Tubing Anchor Catchers, and the Vernon-Suter Hydraulic Pumping Units. The Fulkerson Company will offer complete sales and service coverage throughout the state with representatives in Los Angeles, Ventura, and the San Joaquin Valley.

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Any Desired Thread

California Oil World's Monthly Summary

DEVELOPMENT—PRODUCTION—SUPPLY & DEMAND
PACIFIC COAST TERRITORY
TABLE I—CALIFORNIA DEVELOPMENT—PRODUCTION

	MAY, 1946 DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 5 Months	Daily Average May 1946	Daily Average May 1945
SAN JOAQUIN VALLEY						
Ant Hill	1	.....	.....	7	1,286	485
Antelope Hills	.....	.....	.....	.....	1,603	1,840
Antelope Plains	.....	.....	.....	.....	.....	25
Arvin	.....	.....	.....	.....	27	72
Bellevue	.....	.....	.....	.....	410	485
Belridge—North	.....	.....	.....	.....	5,663	6,705
Belridge—South	7	15	415	48	10,928	13,410
Blackwell's Corner	1	.....	.....	.....	209	107
Brundage	.....	.....	.....	.....	.....	.....
Buena Vista Hills	1	2	487	12	39,898	50,094
Burrel	.....	.....	.....	.....	13	25
Canal	.....	.....	.....	.....	2,649	3,715
Canfield-Gosford	.....	.....	.....	.....	91	11
Canfield Ranch	.....	.....	.....	.....	24	20
Coalinga—East	1	2	412	7	17,473	21,354
Coalinga—Nose	1	.....	.....	1	56,462	62,514
Coalinga—West	2	.....	.....	.....	7,134	8,064
Coles Levee—North	2	2	2,770	4	15,160	15,107
Coles Levee—South	.....	.....	.....	1	2,236	2,739
Cymric	4	9	1,182	34	8,301	.....
Edison	7	8	6,704	51	15,609	4,144
Elk Hills	6	1	377	9	7,784	61,871
Fruitvale	.....	.....	.....	.....	7,398	8,589
Greeley	1	.....	.....	3	10,711	15,280
Helm	4	2	490	15	4,252	3,243
Jacalitos	1	2	266	6	4,686	3,126
Kern Front	1	2	66	14	12,922	12,909
Kern River	2	2	20	7	10,300	9,817
Kettleman North Dome	6	2	1,625	11	37,615	39,779
Lanare	2	1	138	10	2,282	337
Lost Hills	.....	.....	.....	8	3,565	3,543
McClung	.....	.....	.....	.....	24	89
McKittrick	.....	.....	.....	1	4,594	4,877
Midway-Sunset	2	3	94	15	37,226	40,212
Mountain View	2	1	618	4	3,253	2,672
Mount Poso	2	.....	.....	10	16,812	18,735
Paloma	7	1	1,052	10	5,121	1,304
Pleasant Valley	.....	.....	.....	1	4,082	3,573
Pyramid Hills	1	.....	.....	1	307	371
Race Track	1	2	287	5	1,208	450
Raisin City	1	2	470	4	2,787	3,242
Rio Bravo	.....	.....	.....	.....	13,566	16,941
Riverdale	1	1	195	5	4,418	4,618
Rosedale Ranch	.....	.....	.....	.....	101	95
Round Mountain	.....	1	46	3	9,458	9,666
Salt Creek	1	2	2,000	2	663	.....
Santiago	1	1	1,000	14	6,443	.....
Sheep Springs	.....	.....	.....	3	446	667
Strand—East	.....	.....	.....	.....	598	864
Strand—West	.....	.....	.....	.....	1,833	1,594
Tejon	2	.....	.....	15	1,000	499
Ten Section	.....	.....	.....	.....	9,026	12,596
Union Avenue	.....	.....	.....	.....	505	57
Wasco	.....	.....	.....	.....	789	1,556
Wheeler Ridge	.....	.....	.....	.....	221	247
Miscellaneous	1	.....	.....	.....	73	18
TOTAL SAN JOAQUIN VALLEY	72	64	20,714	341	411,245	474,353
COASTAL AREA						
Aliso Canyon	1	1	270	4	3,045	3,461
Bradley Canyon	.....	.....	.....	.....	.....	139
Capitan	1	1	212	5	3,557	2,400
Del Valle	1	.....	.....	1	1,756	2,139
Elwood	2	2	293	3	6,441	6,084
Gato Ridge	.....	1	447	1	3,827	4,773
Hasley Canyon	.....	.....	.....	.....	.....	.....
Newhall-Potrero	3	.....	.....	3	5,529	5,793
Oak Canyon	.....	.....	.....	1	1,740	2,138
Oxnard	.....	.....	.....	.....	1,023	1,189
Padre Canyon	1	.....	.....	2	2,372	1,938
Ramona	4	1	102	9	851	219
Rincon	1	.....	.....	.....	4,606	4,914
San Martinez	.....	.....	.....	.....	3,558	2,863
San Miguelito	2	1	1,188	3	4,933	5,444

	MAY, 1946 DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 5 Months	Daily Average May 1946	Daily Average May 1945
MONTHLY SUMMARY—Continued						
Santa Barbara	.....	.....	.....	.....	96	93
Santa Maria	4	2	384	9	13,490	14,465
Santa Maria Valley	4	3	244	21	33,902	38,580
Summerland	.....	.....	.....	.....	.....	3
Ventura Avenue	9	3	632	17	46,066	51,925
Ventura-Newhall	4	.....	.....	7	6,683	5,548
Watsonville	.....	.....	.....	.....	25	25
Zaca Creek	.....	.....	.....	.....	290	.....
Miscellaneous	.....	.....	.....	.....	.....	.....
TOTAL COASTAL AREA	37	15	3,772	86	143,790	154,133
LOS ANGELES BASIN						
Brea-Olinda	2	.....	.....	2	10,788	11,780
Buena Park	.....	.....	.....	.....	50	114
Coyote—East	1	.....	.....	3	4,718	5,057
Coyote—West	2	1	144	4	15,458	14,215
Dominguez	1	1	425	4	16,445	18,802
East Los Angeles	3	.....	.....	2	448	.....
El Segundo	.....	.....	.....	.....	558	834
Huntington Beach	6	3	584	21	46,734	51,342
Inglewood	.....	.....	.....	.....	13,479	15,847
La Mirada	.....	.....	.....	1	110	.....
Lawndale	.....	.....	.....	.....	19	27
Leffingwell	.....	.....	.....	1	14	.....
Long Beach	.....	.....	.....	1	25,367	27,247
Los Angeles-Salt Lake	.....	.....	.....	.....	399	522
Montebello	1	.....	.....	2	8,846	10,287
Newport-Costa Mesa	1	6	831	26	4,810	236
Playa Del Rey	.....	.....	.....	.....	2,449	2,543
Potrero	.....	.....	.....	1	1,012	1,029
Richfield	1	1	116	5	7,654	7,628
Rosecrans	1	1	77	2	5,160	6,119
Sansinena	.....	.....	.....	.....	77	.....
Santa Fe Springs	.....	.....	.....	.....	17,216	17,489
Seal Beach	4	1	306	8	9,957	9,870
Torrance	3	1	55	8	8,709	9,094
Turnbull Canyon	.....	.....	.....	.....	127	196
Whittier	.....	.....	.....	.....	1,030	1,057
Wilmington	22	11	2,597	71	109,307	101,675
Yorba Linda	.....	.....	.....	.....	.....	658
Miscellaneous	.....	.....	.....	.....	.....	.....
TOTAL LOS ANGELES BASIN	48	26	5,135	162	310,941	313,668
EXPLORATORY						
Outpost Wells	25	.....	.....	.....	.....	.....
Wildcats	18	.....	.....	.....	.....	.....
Gas Wells	3	8	Gas	27	.....	.....
TOTAL CALIFORNIA	203	113	29,621	763*	865,976	942,154

*—Includes gas wells completed and 147 drilling wells abandoned.

TABLE II—SUPPLY AND DEMAND FOR PETROLEUM PRODUCTS
PACIFIC COAST TERRITORY
DATA FOR MAY OF EACH YEAR

	May 1941	May 1942	May 1943	May 1944	May 1945	May 1946
RAW MATERIAL—B/D						
1. Crude Oil Produced—California	623,173	625,873	773,444	834,949	942,154	865,976
2. Crude Oil from outside 5 Western States	2,053	2,998	5,137	3,922	26,620	3,637
3. Natural Gasoline Produced	38,000	35,000	38,000	41,000	44,000	43,000
SUPPLY OF FINISHED PRODUCTS						
ALL SOURCES—B/D						
4. Natural Gas., L. P. G. and Condensate	10,000	11,548	8,678	14,194	10,355	16,484
5. Gasoline and Naphtha Distillates	230,290	231,129	248,839	303,903	378,548	312,742
6. Kerosene and Kerosene Distillates	11,355	8,645	9,097	7,774	5,645	14,194
7. Lubricating Oils, etc.	17,097	11,548	14,161	15,193	15,903	13,291
8. Gas Oil and Diesel Oil	93,387	62,645	97,419	89,419	86,548	108,806
9. Fuel Oil Residuum	260,774	325,935	368,355	408,290	510,903	401,419
10. Asphalt and Road Oils	19,548	29,419	24,355	24,355	27,903	26,161
11. Coke and Other Finished Products	3,032	1,484	839	1,935	7,097	5,903
12. Other Unfinished Oils	(3,742)	(2,452)	(2,904)	65	(4,677)	258
13. Refinery Shortage and Gas	24,097	24,967	37,258	41,323	47,969	31,195
14. Crude Oil (Net)	4,613	(29,968)	25,742	5,000	(25,097)	16,193
15. TOTAL SUPPLY	670,451	674,900	831,839	911,451	1,061,097	946,646
16. TOTAL DEMAND	730,387	756,224	852,291	900,063	1,135,162	864,358
17. DIFFERENCE	(59,936)	(81,324)	(20,452)	11,388	(74,065)	82,288
18. Stocks on hand End of each month (Total Bbls.)	145,965,000	137,116,000	130,446,000	88,894,000	75,242,000	78,811,000

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Kern County OIL NEWS

KERN OPAWIGS in some quarters who folded their tents, admitted more exploration might result with OPA'S demise. However, come what may, the old days could not suddenly return. Said they, "precautions still obtain." With subsidies off, there has to be an increase to meet costs. Some Kern oilmen believe that any rise in price will not equal costs of subsidies by tax. "Few people know that what they do not pay the seller is paid to 'Uncle Sam'," at least a dozen operators deplored, this month.

DIFFERENCES of opinion still exist in oil fraternal circles. One operator thought the corner had been turned last April, when some production went to storage. He now is finding out that it takes much more storage today, and larger reserves to operate the lines, and refineries in performing a "working capital," as it were, in order to get into motion . . . for demand.

TAXPERTS are still pessimistic from the local color angle since Kern's budget is up three millions and the assessed withdrawals from potential is down at twice that much. However, there are still returns to come from last year's brand new fields. If agricultural values have been adjusted sufficiently, someone may be wrong again.

FIVE YEARS from now, at least by the early 50's, production will be tops in Kern, in demand as a result of usage. One thing stands out, and that is the much-touted "shut-in" ability of some high-producer wells is not what it has been "oiled up" to be. When some of the valves were opened, none of the fields ran as they should have placed in gushing forth.

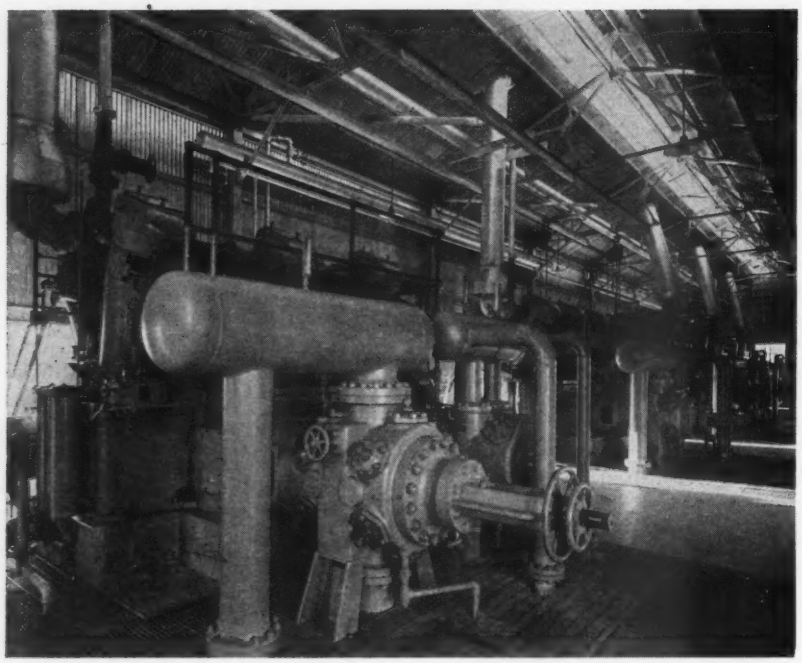
ELK HILLS is now the only "cutback baby" of the Golden Empire, according to reports. The **Supply** and **Demand** twins are not so popular any more, since **prowess** of a field as a whole is more important now.

IF YOU STOP to think about it, production being "up" over most recent figures (June over May, for instance) . . . approximately 850 M b/d . . . with difficulty to supply demand . . . because it takes 50 million barrels on hand to operate facilities. So, the situation is not so rosy as one would think.

AIRLINE HIGHWAY proponents early this month had for chief witness before the Collier interim committee one of California's big-time oil officials. He admitted at Coalinga a fortnight ago that 70 per cent of the production takes place along the new short route between San Francisco and Los Angeles. While it is true that "highways do not an oil delivery make," it still requires transportation facilities for men, equipment and fast trucking to put the "stuff" into pipe lines. People who keep their cars in garages until week ends, do not pay proportionately with others for the use of such good roads. Those who depend upon the highway for the stability of the oil economy or other commerce pay the the freight. . . . Something not much short of a "standby" charge may be in order to prevent a 20-year lag in transportation ways.

OUR MR. OILFRIENDLY almost admitted that some day the resources will have had its "pitcher broken at the cistern" by century's end, and the land with its underlake of oil might well have been long dissipated. The townsmen and the allies of oil's industry will have been left by the vanishing economy, to accept "come-what-may." "Needless to say then," said he, "some provision should be made to leave a mark of appreciation, so that some economy might be rehabilitated without taking a hundred years to pay for improvement in public facilities that make it possible

CLOSE COALINGA CHORUS is batonned by R. L. (Bob) Rigsby of "HOMCO" (Houston Oilfield Material Company), with Al Mac Isaac of Tide Water Associated at Coalinga sales department . . . who was on hand at the Airline Highway Association meeting with Senator Randolph Collier, chairman of the interim committee. They met in Coalinga a fortnight ago to study the many problems of "Airline Highway," which will save over 60 round trip miles between L.A. and S.F.



OIL FIELD CONSTRUCTION is not limited to derricks alone as the above installation would suggest. "Rather such construction is the result of oil wells alone," says Charles E. Manley of the Northern Division Oil Field Construction Company. Incidently, this job in Kern County runs into the fracton of the million dollars bracket figure.

for private enterprise to exist." Men like he help make the oil industry great.

ELMER POE, one-time Richfield superintendent at Fellows, is now what some folks say "right on the threshold of even greater recognition." P.O.G. (Pacific Oil and Gas) is now in the news with Elmer. Kings County is POG's Pyramid Hills have a dozen good oil wells, but Kern's POG's stake may double that number here. At pipe-setting time in the Jasmine area, straight east of Delano, it looks like a new field will be proven up. . . . Ivy Drilling Company, according to POG's Field Superintendent Elmer C. Poe, is about to write some history.

ONE DAY in Taft this month, Curley Emmons attended the annual chamber-of-commerce event. To him had come the quarter-century anniversary of his support for Taft's Chamber, about the middle of the 20s. Then oil well supplies and services were something out of his world. Said he, "Taft Chamber, like the 'doodle bug,' finds sources of supply that works both ways to stir encouragement and new business."

"MUSIC GOES around and 'round when you push the little valve down." How true at Johnson's Valve Shop. When some pumper pushes that big valve down some of the time it's for a trip to the shop without a stop . . . and, repair bill returns a check to make the world go 'round and 'round.

AT EL TEJON, the table for the scouts is still as long as ever. Vacations must be staggered or else the season's not in bloom. 'Twould make one think, however, that new scouts absorb vacation absentees.

"LOVE ME, LOVE MY DOG" is bromide number one, but that old tart is gone for good. For when we called on Charlie Manley at Oilfields Construction this week, his talk about the last half-million-dollar job was ended by other good news. His neighbor's dog will soon be formally adopted by neighbors far away. Now Charlie likes all dogs . . . don't get us wrong . . . he likes the people . . . all kinds, too, and most of that especially nice people with bad dogs. But there seems to be a limit to instruction from us human beings who hope to keep in touch with dumb animals by word from mouth. Manley's life is haunted . . . first by day with pipetalk and construction needs, and then by night with a four-year course (curse) in "bow-wow" barking biddle.

Whenever Charlie comes home and takes a step, his every action is so measured by a "husky" that tries to peer from behind those marble walls that separate his home from Fido's yard. For all our sakes, let's hope that 'husky" finds a home on some abandoned land in fee.

"THE OILFIELDS serve the farmer." Incredible, is it not? Or should we say, "the farmer serves the oil industry"? Be that as it may, the economy of the county here is changing. It used to be that OIL served agriculture . . . oil paid the taxes . . . still does . . . over 50 per cent. But recently we have watched with interest the sale of oil-well supply equipment and services to the farm. No longer does the Kern-farmwig depend upon that royalty, but rather upon pipe in tail lengths, big inch, cattleguards, and the water well rotary rigs which make things go and happen on the farm. Butane diesel and the lube are not enough. Fertilizer, DDT and oiled roads hauling "gyp" are still not quite enough. The new demand for farm machinery, welded pipe for land-level monsters, structural steel for warehouses, tanks and the irrigation needs. And so WESTERN OILFIELDS SUPPLY COMPANY (WoSco)-to-you, has gone "all out" to serve the farm and its demands. The world it changeth in old Kern.

TAKE INVENTORY once again and mark the firms that make possible "Kern Oil News." Each month at second issue's birth, at least ten folks engrossed in oil's industrial allies, postcard for added information, for news on ships and shoes and casing head, and folks and things most often mentioned in Kern News.

HERM WEDDLE of Standard Oil geological department has gone fishing. Herm would have never told us about it, but we called his wife for his whereabouts in order to get some news . . . Mrs. Weddle supplied all we wanted inadvertently. . . . "Gone fishing."

OIL FIELDS employment demands carried over from the increase in May and June. Both of

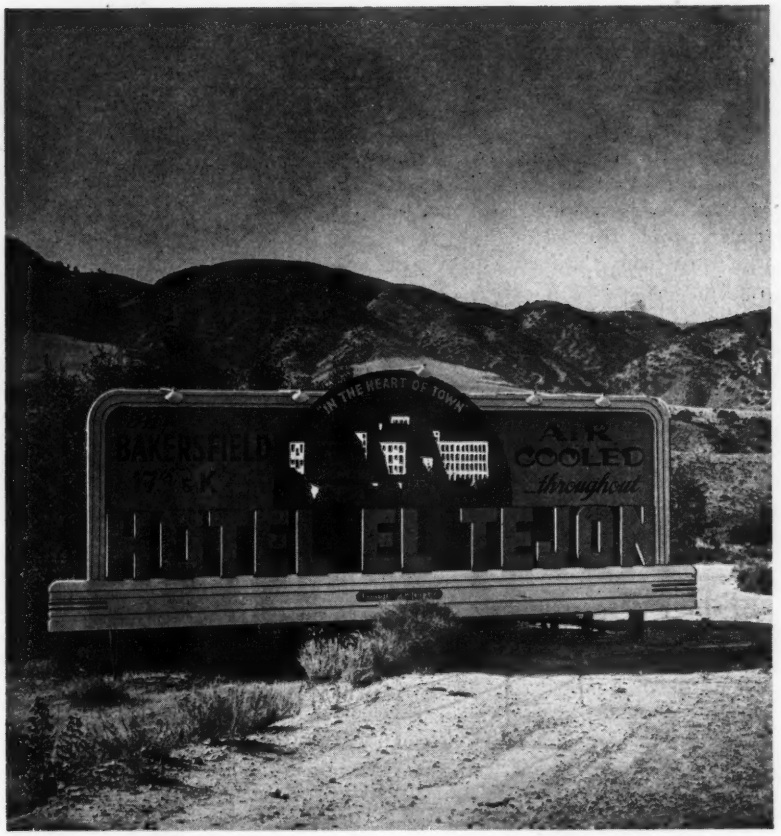
these months were better than January and February according to R. E. (Bob) Evans of the local Kern USES.

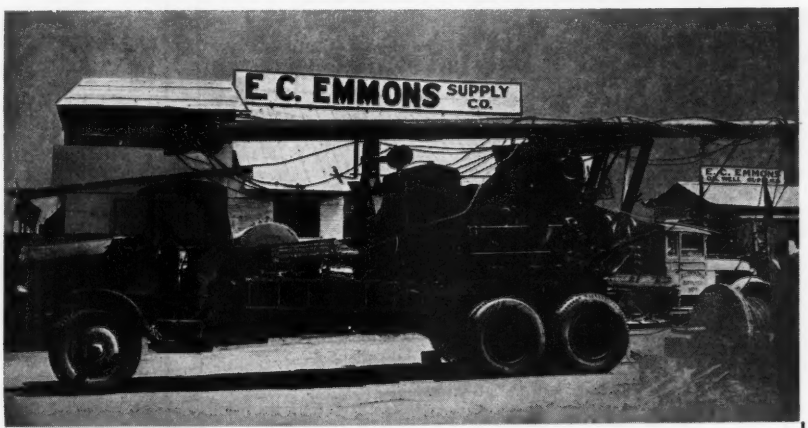
MOHAWK's new government unit for 100 octane was bid in through War Assets by Standard and the plant is being run more or less on an experimental unit according to some wisewigs. Additional personnel was recently added. New demands for 100 octane have not registered any increasing returns since the B29's quit claimed Guam.

L. W. (LARRY) HUNT is a free lance consultant now in the Haberfelde Building since his separation from various governmental connections. During the first week following Pearl Harbor Larry was rushed out of private consulting to Honolulu where he helped put some of the things back together again.

YOU WOULDN'T KNOW STOCKDALE anymore. Not only have most of the oilmen **havened** it for their relaxation but employ it as a vehicle for styles. If one would want to see how big tough oilmen look in shorts take a fairway stroll and forget your score, you can't play anyway, for the rubbernecks gallery is terrific. These shorts serve a three or four-way purpose. Golf, swimming in the new pool, showering under the new pressure sprinkler system, or one can leave them home. Recommendations: some of the pauchy ones with white thighs should diet and keep it tan. . . .

H. F. (FRED) OWEN . . . Ethel "D" Oil at Maricopa and parts west is Kern County Bank's president for two score years. This week as Fred made ready to celebrate the Silver Anniversary of the Institution built on oil from the soil and also soil of the farmers, he has enclosed two statements of condition. In a period of comparison during 18½ years the difference in total assets are $10,416,447.36. Fred has lived through a boom, a depression, a repression, NRA, FDIC, SEC, War and the potato ages. Day the Oildale Branch opened he and Angus Crites donned oil helmets, found a Model "T" and drove up to the bank to open the first two accounts and it looked like a riot or a run on





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the bank. "This time people wanted to put their money in instead of take it out," said Fred, in comparing the good old '29's Your scribe thinks the bank was built on Fred's faith the people have in him, and the good old risk enterprise spirit that made good for 176 years because people trusted people . . . all the way from California to Washington, D.C.

WESTERN FRONT excitement is unabated in the Lerdo potato field, according to Martin Orloff who has a personal interest in its development along with Ed Kelly, et al.

WILLIAM K. LEE, one of Kern's finest pioneers traded some of that oil farm for olive oil land. If Martin brings in another well, we nominate it the "W. K. Lee." We also told young Bill Lee that if they ever complete subdividing plans we shall propose a street named in his honor.

G.P.'s BILL BRUNN with a shoulder full of medals and a famous war record is back. A veteran of every Pacific Southwest engagement where in four years he went from buck private to lieutenant in the Marines, he returns still a veteran in the oil business. This time he is oilfields property appraiser for GeePee and doing a grand job. This time GP is doing the decorating and very well with coin of the realm.

HERE HE IS, the General Chairman of Transportation and Highways of big Kern County chamber of commerce. Dick (R. R.) Whitaker who is Standard Oil's (SOCO) big public relations headwig for the great San Joaquin Valley and Golden Empire of Kern.

WHICH REMINDS US that Robert I. (for income) Plomert, to rhyme with taxpert, is scowling over the rolls at the assessor's office to see if Johnnie Maddrill has cleaned up all the idle derricks out of Josh Hanks' clean swept path by deputy assessors who were seen taking down notes beginning March first, this year.

JOSH HANKS is to be congratulated, too. Come the public protest day, but the many called were not present. Yes, and it is rumored, although Harry Hopkins is on vacation where we could not reach him, that the rate will be $2.25 . . . upped almost a dollar. Salary increases .. old budgets with a prewar look .. most of them postwar with 37% increase in population.

COLONEL ARTHUR S. CRITES who has haunts of hunting hazards in the far embracing arctic circles, is gone on a new junket near prairie chicken lane in sandhill row. This time he confines himself to the northern middlewest ac-

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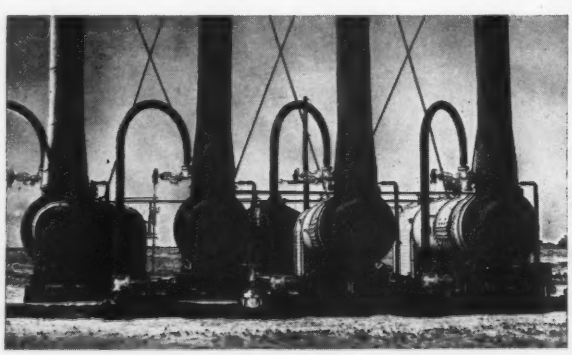

A FIRST CLASS JOB

JOHNSON VALVE SHOP

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cording to reports.

R. E. ASHE of Sailor's lease has purchased the L. D. Bachelder 20-acres right down U.S. 99 on Brundage Lane. Bach paid ten grand less than eight years ago. He doubled his money so didn't bother about subdividing. The other day it was rumored that Dick Ashe is about to double his. Only thing holding him back is a dislike for moving out of a comfortable ranch home a stone's throw from the city. Negotiations are on to leave the house and furnish a lot for it.

WESTSIDE'S A. W. (Andy) NOON from Taft where he has been serving two terms as supervisor, was elected to the San Joaquin Valley Association of County Supervisors. Oilmen are pleased, particularly those promoting travel and aviation . . . Andy does both and thinks every person is a tourist and a prospect for gasoline.

IMAGINE ANYONE ever connected with oil traveling U.S. 101. Well, that happened to someone we all know . . . your friend and mine . . . may tell you later. Anyway temperatures during that period were slightly higher in the coastal area with much more humidity. Incidently clouds hovered over Kern for three straight days in July's second week which made it hotter than usual. There's one thing Kern folk will not put up with and that is moisture in the form it has been dished out . . . not the beer shortage . . . but the shortage of hot, dry weather.

GEORGE L. HENDERSON, Stockdale engineer, with Kern County Land Company, has been under the weather and trained for the hospital earlier this spring. We understand that he is now separated from his troublemaker, but it took a lot of gall to do it.

THE FLORAFAUNIUM at Lebec is becoming a hunting ground for sportsmen who gave up years ago for the sake of game conservation and golf. Today, these oldsters point out the natural habitats of the Florafaunium which contain the birds that didn't get away. A showplace of the San Joaquin Valley, the building houses the world's finest collection of California flora and fauna. In the center is the souvenir of the Golden Gate International Exposition, the great valley in relief, while around the giant walls of the huge showcase are photographic murals symbolic of the wealth which has been developed from understanding. The collection is known as the Emery Whilton masterpiece made possible by a half century of daily diligent concentration and hunt for specimens including a vast display of wildflowers, also now almost distinct along with the game.

THIRTY YEARS AGO the famous Lakeview No. 2 gusher on Maricopa Flats has a water shutoff program commenced by Superintendent Leroy Evans, according to the "Californian."

IT WAS GOOD TO SEE Glenn Henderson the other day in Bakersfield. Not for sometime had we been able to meet him. He is with Lufkin Foundry and Machine Company and will be located in Los Angeles. He used to be here with D. & B. until it was purchased by Emsco. We knew him at Taft, too. Our congratulations from Kern County friends.

CHARLEY LAKE has retired from the directorate of the county chamber of commerce and we were all sorry to see him do so. He served for five years with two years as president. He was responsible for a progam of conversion by local associates which brought in war production during the National Defense days. He created an innovation in civic planning later by directing efforts to make known the cultural resources which are in his opinion as important as the natural and economic ones. Lake is chairman now of the Living Memorials Committee for Kern County. He is also vice president of the Stockdale country club where he relaxes from strenuous affairs of civic and commercial endeavors. Mr. Lake says, "Kern County has been good to me, I would like to do something else to show my appreciation." He was successful with his committee in establishing a "beach" park on Kern River. Lake has two sons and a splendid wife. His boys saw service as did himself in World War I.

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Salt River Valley Near Phoenix, is Scene of Latest Search for Petroleum in Desert Province of Arizona

INDICATIONS OF THE EXISTENCE OF PETROLEUM DEPOSITS IN THE AREA ARE GOOD

By RAY E. COLTON, Sc.D.
Petroleum Geologist

"The old story of gold being where one may find it" does not hold good in searches for petroleum deposits in commercial amounts.

Petroleum or "black gold" as the elusive mineral is known in the major oil producing areas of the United States, is most generally found, only beneath such areas as previous geologic and field paleontological research operations, reveal as having one time been beneath the waters of a sea, in which existed the marine animal and plant life, from which crude oil is believed to have evolved.

This brings us to such an area, of the Desert Province of southwestern Arizona, locally described as Maricopa County, and the scene of present drilling operations for the potential commercial recovery of crude oil, roughly about 20 miles northwest of Phoenix.

The well now being drilled is the Robertson Number 2, location NE of NW of section 33, township 5-north, range 3-west of Gila Meridian, Maricopa County, Arizona. The total depth of the well at this writing, June 26, 1946, is 4,720 feet. A strong flow of soft water has been encountered and a squeeze job is scheduled before further drilling is contemplated. However, this condition is only temporary, and it is the intentioin of Mr. John J. Robertson, oil operator of Phoenix who is sponsoring the drilling operations, to continue drilling to potential petroleum production horizons, believed to lie at the 4,550 foot level and below this depth.

Second Well

This is the second well to be drilled in the area, the first well being the Robertson Number 1, location NW¼ of NE¼ of section 33, township 5-north , range 3-west of GSRM. Maricopa, County, Ariz. This well had heavy oil "shows" at a depth of 3,200 feet, but owing to unforeseen mechanical difficulties, the well was abandoned at a depth of 4,280 feet.

The well now being drilled known as the Robertson Number 2 is being drilled under contract by J. R. McGill, Drilling Contractor of Amarillo, Texas. Rotary drilling tools, a new EMSCO Number G-500, the latest type of drilling apparatus, is being used.

Lane-Wells electrical log taken of this well shows strong evidence of petroleum producing horizons.

Geology of the Area

The Desert Province of Arizona where drilling operations are now underway in the southwestern portion of it, is described as a great plain sloping gently toward the Gulf of Mexico and punctuated by numerous mountain ranges which rise abruptly from the surface of the plain. The ranges are aligned in northwest-southeast trending directions, with the exception of several which trend northeast-southwest. The desert ranges are composed largely of igneous and metamorphic rocks with some sedimentary rocks present in a number of the mountains.

The presence of numerous seepages of high grade petroleum in the area of the Desert Province of Arizona locally described as Maricopa County, where the Robertson Number 2 well is being drilled, further influences the intensive search for petroleum now being brought forward by Mr. Robertson and his associates. The State Land Department of Arizona has investigated the occurrence and the geology of the seepages which have appeared, and the results have led this department to the firm belief that petroleum prospects in this area of the Desert Province of the State of Arizona, i.e., Maricopa County and northwest of Phoenix, are favorable.

And one of the regions specifically mentioned in the report is the Salt River Valley.

Yes! field drilling operations for the recovery of potential oil deposits in the Salt River Valley of the Desert Province of the State of Arizona, is now on.

Patch Advanced by Joshua Hendy

Clifford A. Patch has been appointed Sales Manager, Western ern Division of Joshua Hendy Iron Works, succeeding Clarence Jensky, resigned, according to announcement made by Harry C. Gunetti, General Manager.

C. A. Patch

Patch has been successively assistant chief engineer, turbine sales manager, and chief project engineer at Hendy. He will supervise sales of all products made at the company's Sunnyvale and Torrance, California, plants — Diesels, turbines, gears, valves and custom built machinery.

Field Development

PREPARED BY CALIFORNIA OIL WORLD NEWS SERVICE

Los Angeles Basin

Union Drilling Basin Wildcats

The far-flung wildcat operations of Union Oil Co. include three interesting tests in Los Angeles Basin territory. Culp No. 1 in the Pico area in Sec. 7-2s-11w is milling on core barrel, with bottom at 2983 ft. Hellman No. 58 in Sec. 27-3s-13w in the Dominguez area is rigging up. Simi No. 7, a cable tool job in Sec. 22-3n-17w in the Simi area is a location only.

El Segundo Job Pulling Tubing

Tubing is being pulled from Shell Oil Co., Inc., Operator, Six Companies Fee No. 1 wildcat in Sec. 2-3s-15w in the El Segundo area, after sand line was lost. The well was drilled and cored to a total depth of 7033 ft. and plugged back to 6940 ft., with 83 ft. of 5½-in. liner, including perforations at 6875-6936 ft., landed at 6936 ft. Swabbing resulted in 92 barrels a day gross, with fluid level at 1260 ft.

Redondo Well Grading Site

Royal Petroleum Co. is grading location for its well No. 21 in the Redondo field. Drill site falls 660 ft. south of well No. 20. Contractor is Pacific American Oil Co.

Shell Grading Newhall Wildcat

Those without sight may be considerably benefited by landowner royalty if Shell Oil Co., Inc., meets success in developing new oil production on ground leased from the Braille Institute in Sec. 2-3n-16w, south of Newhall in Los Angeles County. Site is being graded for the first well, which is schceduled to go to at least 4500 ft. in its oil quest.

In the Athens-Rosecrans area, Shell is preparing to redrill and deepen the former Republic Petroleum Co., Trust No. 1 bottomed at 7571 ft. Reyes No. 144 in the Dominguez field is fishing bit, with bottom at 1607 ft.

Montebello Try Gives Up

Lodico Oil Co. has abandoned its No. 1 test in Sec. 35-1s-12w in the North Montebello area at a total depth of 5219 ft. Decision to give up the project was prompted by loss of hole while trying to clean out and deepen.

Boyle Heights Try Scheduled

Richfield Oil Corp. has announced location for Boyle Community No. 33-1 near the intersection of Brooklyn Ave. and Rowan St. in Sec. 31-1s-12w in the Boyle Heights district, east of downtown Los Angeles.

Gardena Wildcat Formation Tests

Bodger No. 1 wildcat test in Sec. 22-3s-14w, sponsored by British-American Oil Producing and The Texas Co. in the Gardena area, was last reported running formation tester. The well, which is being drilled by Severns Drilling Co., is bottomed at 8149 ft.

Rig Built For Whittier Test

Rig has been built for Delaney Petroleum Co.'s Jones-Central No. 1 exploratory venture in Sec. 24-2s-11w in the Whittier area. Gibson Drilling Co. has the drilling contract.

Brea Job Bailing

With hole bridge at 1853 ft., El Rancho Exploration Co. is bailing its El Rancho No. 1 test in Sec. 30-2s-9w in the Brea area, Los Angeles County. Original bottom is 2336 ft.

Chino Hills Oil Sought

In the Chino Hills area of San Bernardino County, C. W. Ginter & Associates is drilling Kraemer-Backs No. 1 in Sec. 33-2s-8w below 2750 ft. Grayco Oil Co.'s Mahla No. 1 in Sec. 13-3s-8w is trying to regain circulation around 100 ft.

La Habra Explorer Logs Oil Sand Zone

G. B. Finch Oil Co. is running casing in its Hilo-Cinnabar No. 1 in Sec. 1-3s-11w in the La Habra area, which is credited with logging an oil sand body of some degree of importance. The try is bottomed at 8198 ft.

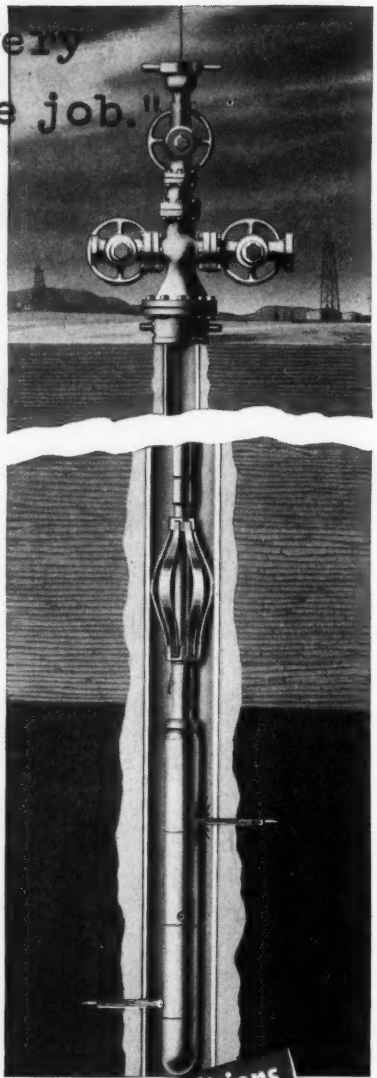
Turnbull Canyon Test Starts Soon

A. W. Lyddon, Operator, in recent months singularly successful in uncovering new oil at Huntington Beach, has location staked for Wm. Rowland Est. No. 3-2 in Sec. 17-2s-10w in Turnbull Canyon area. Pre-

"high pressure has balked every attempt to gun-perforate the job."

in fact, it seems impossible to get a gun down the well. Blowout preventer packing is so tight, due to the high pressure, that the weight of the gun will not pull the line through it. The one gun we did get in was blown right out of the hole. Can you help us?

Very truly yours,



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OKLAHOMA: GUYMON, OKLAHOMA CITY **MISSISSIPPI:** LAUREL **NEW MEXICO:** HOBBS
CALIFORNIA: AVENAL, BAKERSFIELD, LOS ANGELES, SACRAMENTO, VENTURA **WYOMING:** CASPER
LOUISIANA: HOUMA, LAKE CHARLES, NEW IBERIA, SHREVEPORT

vious wildcat operations sponsored by Mr. Lyddon in the area failed to find commercial oil, although showings uncovered were encouraging and call for further prospecting.

Inglewood Test Preparing to Spud

On the northwest side of Inglewood near the residential district, Basin Oil Co. is preparing to spud its Standard Brick No. 1 wildcat in Sec. 28-2s-14w. The well which will be drilled by T. P. Pike Drilling Co. probably will look everything over to a minimum depth of 10,000 ft.

Leffingwell Try Drilling On Down

Rothschild Oil Co. E. S. F. S. Comm. No. 1 in Sec. 10-3s-11w in the Leffingwell area is drilling ahead below 2900 ft. Standard Oil Co. Carmenita Comm. No. 1 in Sec. 4 is re drilling at 7350 ft. after going originally to 8078 ft. running survey and plugging at 7300 ft. Nearer La Habra Standard's Stern Comm. No. 2-1 is spot coring at 11,400 ft. Site for the latter is in Sec. 7-3s-10w.

East Los Angeles Try Rigging Up

Richfield Oil Corp. is rigging derrick to begin drilling its U. P. Unit No. 2 in Sec. 8-2s-1w in the East Los Angeles area. Vail No. 2 in Sec. 16 is testing water shut off on casing cemented at 9200 ft. A formation test between 9203 and bottom at 9238 ft. was inconclusive due to packer failure. No retest was made. Keller No. 1 is standing with operations suspended at 9358 ft. Edison No. 1 is replugging to sidetrack old fish. Original depth is 8000 ft., with redrill to 7815 ft.

C. C. M. O. Co. is spot coring below 12,150 ft. in Bandini No. 1 in Sec. 21-2s-12w. Shell Oil Co., Inc., Pansini No. 1 in Sec. 23 is still idle at 9310 ft.

Seaboard Drills Mission Wildcat

Not a great distance from San Fernando Mission, Seaboard Oil Co. is drilling ahead with its Mission Land No. 8-1 wildcat in Sec. 25-3n-16w in the Newhall area. Four formation tests of oil sand in the interval of 3031-3831 ft. recovered a few showings.

Richfield Well Swabs Some Oil

Basin Oil-Wilshire Oil combination's Stern No. 1, designed to widen the productive area of the Richfield field some 500 ft. southerly, swabbed and bailed but little fluid from 4835 ft. Casing is set at 4719 ft.

Although the project found an oil sand measure of substantial proportions, conditions so far apparent are reminiscent of a well drilled a year ago in the area by Century Oil Co. on the Wetzel lease. This previous job found a promising oil sand, which gave up nothing of commercial worth, despite protracted swabbing.

The Texas Co., meantime, is rigging derrick for Bradford No. 2-2.

Wilmington Jobs Good Producers

In the Long Beach Harbor area of the Wilmington field, Sonwell Oil Co. has completed its well No. 5 at a total depth of 5810 ft., flowing 386 barrels of 28.4 gravity oil a day from

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50 ft. of the lower part of the Ford zone only. A 30/64-in. choke is restricting flow. A short distance west, Bankline Oil Co.'s U. P. No. 4 is standing cemented with casing set at 5705 ft. Bottom is 5950 ft. in the prolific "237" zone. U. P. No. 7 has been finished at 6147 ft. for a present yield of 195 barrels of oil daily.

The Cleveland Oil-S. S. Fletcher combination has completed Wilmington No. 1 at Bay View and L Sts. in the North Wilmington townlot area for 80 barrels a day at 3726 ft. The joint interests plan four more drilling jobs in the area.

Richard H. Larson is ready to gun-perforate, after water shut-was approved on four holes at 6570 ft. in Larson No. 2, which is bottomed at 6610 ft. and has casing set at that level.

Del Valle Area Active

The Texas Co. is grading location for Black No. 1 test in Sec. 12-4n-18w in the Del Valle area of Ventura County. Kern No. 13-SW-118 in Sec. 18 has been completed for 170 barrels of 22.4 gravity oil a day, cutting 10 per cent. Total depth is 4188 ft.

Superior Oil and British-American Oil Producing's Black No. 4 in Sec. 13, meanwhile, is standing with 7-in. casing cemented at 1987 ft. Bottom is 2049 ft. On formation test of the interval of 1775-1875 ft., recovery was oil, mud and some gas. Bankline Oil's Black No. 104 in the section is ready to test water shut-off at 2920 ft. Total depth is 3550 ft.

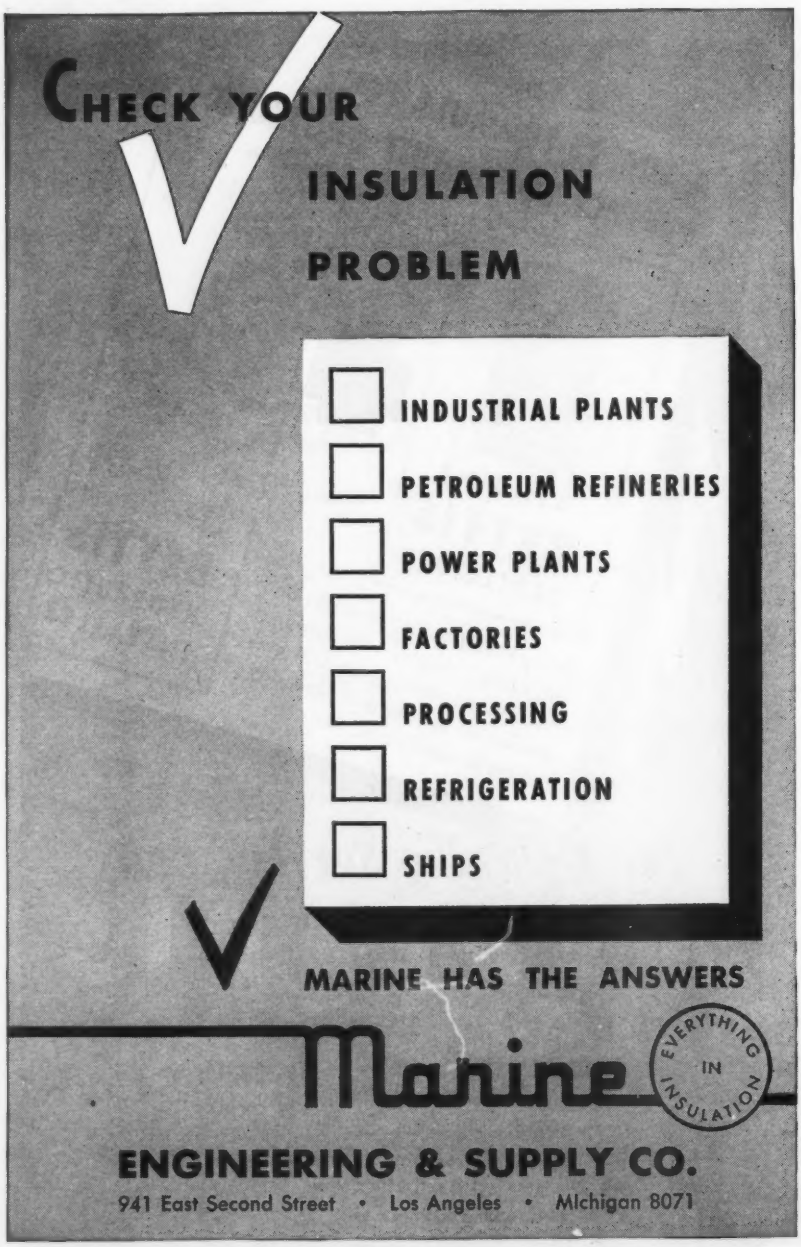
Beach City Area Holds Interest

R. W. Jerman has started drilling Gothard No. 1 wildcat in Sec. 27-5s-11w, a little less than a mile north of the Huntington Beach field. Between Southeast Huntington Beach and Northwest Newport, Signal Petroleum Co. of Calif. has completed Callen's No. 1 in Sec. 18-6s-10w for a present yield of 460 barrels of 14 gravity oil a day through a 20/64-in. orifice. No estimate of gas output has been made. Total depth is 4429 ft., with 7-in. casing set at 3860 ft. Barnhart - Morrow Cons. is ready to spud its offset project, Alford No. 1 in the section.

A. W. Lyddon is rigging up another wildcat test. It is Crew Comm. No. 1 in Sec. 32-5s-10w, which will be drilled by T. P. Pike Drilling Co. The operator's new well, Anaheim Sugar No. 7-1 in Sec. 7, is flowing 300 barrels of 18.2 gravity crude daily through a 20/64-in. bean. Total depth is 6930, with hole bridged at 5550 ft. Casing was cemented at 5500 ft. L. & W. Oil Co.'s No. 1 in Sec. 18 is a foundation.

Piru Well Lists Test

Lisk No. 1, sponsored by R. E. Havenstrite, Operator, in Sec. 15-5n-18w near Piru, Ventura County, is being rigged for test. Hole is bottomed at 3479 ft.



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San Joaquin Valley

McDonald Well Makes Location

Atlas Production Co. has made location for U. S. Anticline No. 1 in Sec. 33-27s-19e in the McDonald Anticline area, Kern County. The Texas Co., meantime, is preparing to plug bottom and sidetrack sidewall samples in its Theta No. 2-1 wildcat in Sec. 2-28s-19e. Total depth is 850 ft.

Ring Starts At Round Mountain

Ring Oil Co. (George and Frank Ring) has location staked for No. 14-1 in Sec. 14-28s-28e in the Round Mountain area. The company has chalked up notable successes in several sectors in the area.

Cantua Creek Try Rigging Up

Bankline Oil Co. is rigging derrick for Kenyon No. 1 wildcat test in Sec. 4-17s-15e near Cantua Creek in Fresno County. The area generally has been the scene in recent years of a number of prospect jobs sponsored by Western Gulf Oil Co. and Richfield Oil Corp.

The Kenyon project is located about 1000 ft. west of a Richfield try, which was credited with a number of showings in going to 7900 ft. or thereabouts.

Lancaster Test Rigging Derrick

In the Lancaster area of Kern County, Amapola Oil Corp. of Bakersfield is rigging derrick to start drilling No. 1 wildcat in Sec. 6-6n-12w.

Paloma Field Interest Center

Lloyd Corp., Ltd., is ready to begin work on another drilling job on its Houchin lease on the northeast flank of the vast Paloma field. The well is known as Houchin No. 61-34 and located in Sec. 24-31s-26e. The lease already boasts three wells producing each an average of 800 barrels of oil a day from levels around 11,500 ft. in the Paloma zone. It is west of Superior Oil's Houchin lease and is bordered by Paloma Unit's holdings on the west and south. On the west side of the field, Ohio Oil Co. is drilling ahead in hard shale at 10,149 feet. with K. C. L. No. A-13 in Sec. 32-31s-26e. On the formation test of the interval of 10,037-10,079 ft., recovery was made up of 3050 ft. of 29.7 gravity oil, 3500 ft. of mud and 2100 ft. of salt water. This was a try of Paloma sand.

Mount Poso Try Gives Up

Crestmont Oil Co. has given up its Blackfoot No. 7 try in Sec. 27-26s-28e in the Mount Poso area, after a hunt for new oil that went to a total depth of 1501 ft. The Vedder, topped at 1175 ft., evidently was not well saturated and wet.

Jasmine Test Bailed Crude

Pumping unit is being installed in

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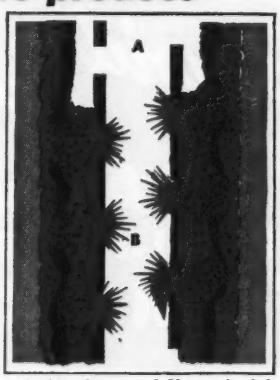

A further danger of filter cake left in the well is shown at B. Oil breaking through a few weak spots in the filter cake travels at relatively high velocity, carrying excessive sand. Perforations are being cut away, the sand body is caving: eventually this pipe will collapse.

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Pacific Oil & Gas Dev. Corp., No. 72-22 in Sec. 22-25s-27e in the Jasmine area of Kern County. Drilled and cored to a total depth of 2794 ft., casing is set on bottom. Considerable crude oil was bailed, giving an encouraging aspect to the project.

Miramonte Try Drills Ahead

Pacific Western Oil Corp., National Royalties No. 1 in Sec. 5-26s-22e in the Miramonte area, Kern County, continues to make hole steadily ahead below 11,750 ft., without intimation by officials as to what may have been uncovered of worth to date.

Obispo Test Stands Idle

On the famed Cuyama Rancho in San Luis Obispo County, H. L. Norris' No. 2 wildcat test in Sec. 25-11n-28w is standing idle at a plugged depth of 1736 ft. Original bottom is 2730 ft.

This test and previous exploratory operations have generally found interesting showings and for this reason, if for no other, the area continues to intrigue many geologists.

Shell Plans Jacalitos Job

Shell Oil Co., Inc., has location staked for Kreyenhagen No. 23-8, a wildcat test in Sec. 8-22s-16e in the Jacalitos area of Fresno County. In Sec. 26-21s-15e, Bolsa Chica Oil Corp. is testing Temblor showings with No. 2-36E. Total depth is 4807 ft. in gray sand. The hole is plugged at 4773 ft., with casing landed at that level.

Mountain View Try Cellar Dug

Cleveland Oil Co.'s Ten Eyck No. 1 try in Sec. 29-30s-29e in the Mountain View area of San Joaquin Valley has advanced to the point of where cellar is dug. Brown Drilling Co. is drilling contractor.

Fruitvale Try Production Failure

In the Fruitvale area of Kern County, National Iron Works evidently has met with disappointment in trying to develop new production through the medium of its Galtes No. 1 in Sec. 14-29e-27e. The well explored to a total depth of 3463 ft., without encountering showings of commercial worth.

Petrol Enters Round Mountain

Petrol Corp. has location staked for KCL-Claire No. 4 in Sec. 13-28s-28e in Round Mountain wildcat ground. On its Crandall lease in the Northeast Coalinga area, No. 41-18 has reached 8218 ft. in silt.

Cymric Well Going Deeper

Universal Consolidated Oil Co. is reaming preparatory to drilling ahead with its Sauerdough No. 8 in Sec. 23-29s-21e in the Cymric field, following a formation test of the Phacoides zone between 4110 and bottom of the hole at 4235 ft. Open one-half hour, recovery was 10 stands of mud along with 29½ stands of water. Blow was weak. Prime

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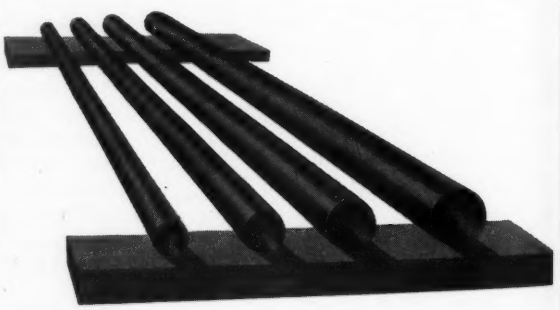

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objective of the well is the Oceanic oil sand zone. The company, however, scheduled a try of the Phacoides on the way down.

Having found a good - looking measure of black oil sand in the Amicola zone, Independent Exploration Co. has run casing in its Oceanic No. 3, standing cemented in Sec. 22-29s-21e. Total depth is 1351 ft. Honolulu Oil Corp.'s Midway-Premier No. 22-266 in the section is ready to plug at 5780 ft. and run liner. The well was drilled and cored to a bottom of 5816 ft. in gray sand. Casing is set at 5325 ft.

Antelope Hills Wildcat Inactive

William Bros. Oil Co., Layman No. 4 in Sec. 7-28s-20e in the Antelope Hills area of San Joaquin Valley is standing idle at a plugged depth of 981 ft. Old depth is 1082 ft.

Belridge Try Rigging Pump

Liner has been rerun and pump is being rigged to Wilshire Oil Co., Inc., Lehman No. 3 in Sec. 18-28s-20e in the Belridge area. Bottom is 1220 ft., with casing set at 1169 ft.

Lamont Try Prospecting

Tide Water Associated Oil Co. is prospecting ahead with Frick No. 22-16 in Sec. 16-31s-29e in the Lamont area of Kern County below 9000 ft. In the Arvin area, location has been staked for Tupman No. 43-9 in Sec. 9-31s-29e.

Kings County Testing Scene

In the Pyramid Hills, Kings County, Ridge Petroleum Corp. is drilling shale below 550 ft., with No. 13 test in Sec. 17-24s-30e. Near Corcoran, Four Star Oil Co. is rigging to deepen from present depth of 6050 ft. its C. I. D. No. 1 in Sec. 24-20s-22e.

Kings Exploration Co., Avenal No. 1 in Sec. 1-1n-4e is idle at 2862 ft. Kings County Oil Co., von Glahn No. 1 in Sec. 4-23s-22e in the Tulare Lake area, likewise, is idle at 12,014 ft.

Buena Vista Lake Try Conditions Mud

Drilling has temporarily stopped at 5800 ft. in Continental Oil Co.'s B. V. A. No. 1 near Buena Vista Lake in Sec. 8-32s-25e for a period of mud conditioning. Depth is 5800 ft. In Sec. 14-32s-25e, Seaboard Oil Co. is redrilling in hard Chert at 11,025 ft., with SWUM-BVA No. 73-14, which went originally to 11,495 ft.

Blackwells Corner Project Abandoned

With bottom of the hole at a depth of 1375 ft., Hoke L. Woodward's No. 1 wildcat in Sec. 17-26s-19e in the Blackwells Corner area is an abandonment. Poor oil sand was cored in several intervals.

Belridge Test Makes Progress

One of the most important exploratory ventures in the state is Belridge Oil Co.'s No. 62-W33 deep test in Sec. 33-28s-21e in the South Belridge area of Kern County. The try, which holds the attention of a good share of the oil fraternity, last was reported drilling ahead in shale at a depth of 12,486 ft.

Developments thus far are more or less company information only, although the well has been unofficially credited with having a substantial oil sand measure, equivalent to the 64 zone of the North Belridge field.

Holders of surrounding acreage include Union, Shell, Standard, Richfield, General Petroleum, Berry and Universal Consolidated.

Ant Hill Well Plugs

Amerada Petroleum Corp, is ready to run casing after plugging back its S. P. No. 55-15 in the Ant Hill area from a total depth of 2624 ft. to 2165 ft. A test is scheduled of the upper zone. Drill site is in Sec. 1-29s-29e.

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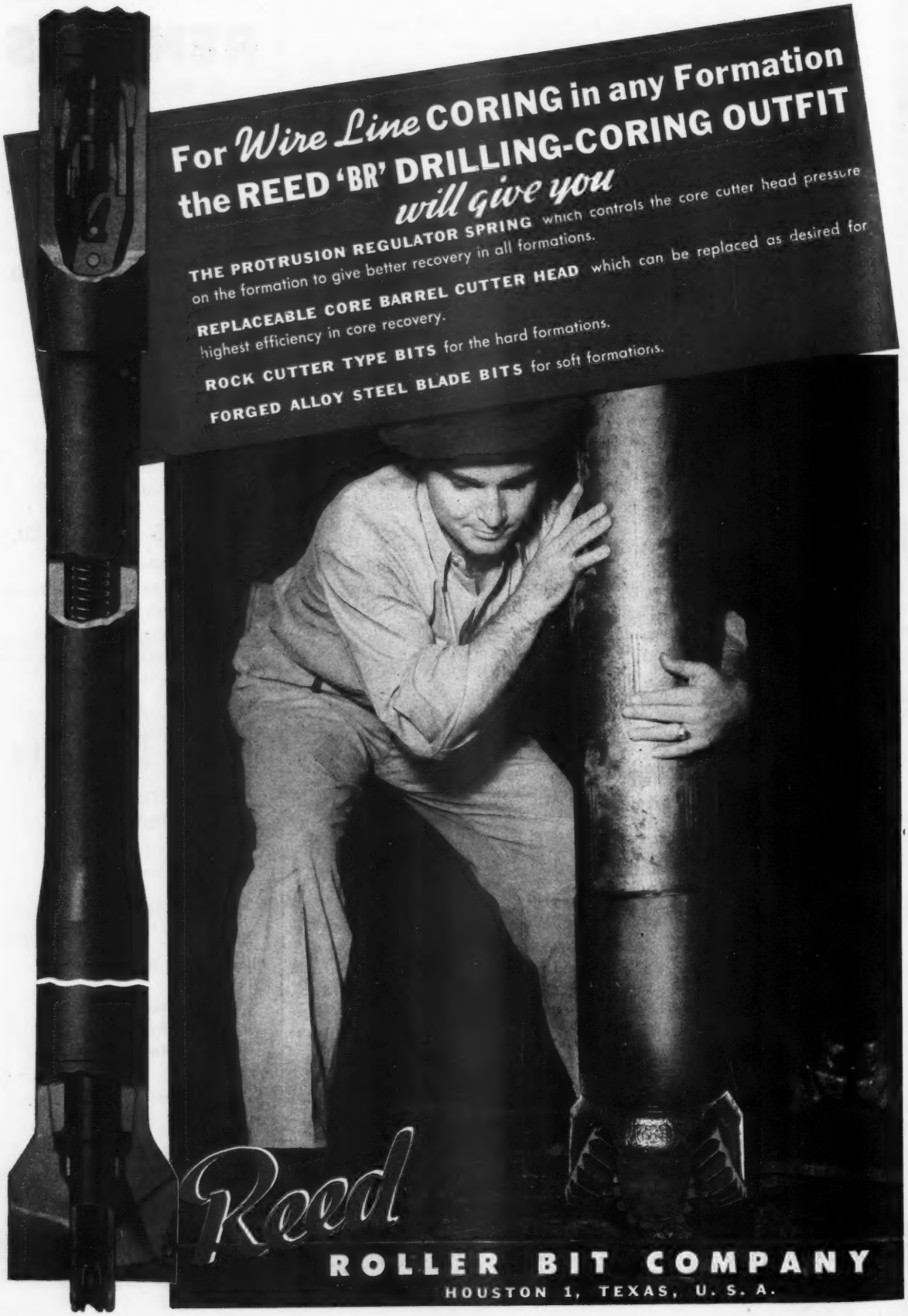
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Coastal and Northern District

Butte County Gas Discovery

Discovery of a new gas field eight miles southwest of Chico has been confirmed by performance of Standard Oil Co.'s Donohoe Fee No. 1 in Sec. 6-20n-1e in the Durham area of Butte County, which blew gas on test of the interval of 2140-2200 ft. at the rate of 4,870,000 cubic feet a day. The company now is preparing to test between 2140 and plug at 2176 ft. Original bottom is 6000 ft. The lower portion of the hole was wet on tests.

This well marks the furthermost point Standard has drilled in California. The well is strategically located with regard to existing pipeline system running between Sacramento and Chico.

Maine Prairie Try Rigging Up

Amerada Petroleum Corp., which found new gas in the Dixon area recently with its Winship No. A-1, is rigging up Crocker Estate No. A-1 in Sec. 25-6n-2e in the Maine Prairie area of Solano County. The Winship producer flowed 7,210,000 cubic ft. daily through a one-half inch bean before it was shut in.

Tehama Try Stands Idle

Northern Counties Dev. Co., Brush Creek No. 1 wildcat test in Sec. 30-27n-5w in the Blossom area, Tehama County, is standing idle, with bottom of the hole at 2060 ft.

Cat Canyon Well Finished

Palos Verdes Estates, P. O. No. 3 in Sec. 27-9n-33w in the Cat Canyon field has been completed at 6097 ft. for 313 barrels of 13.2 gravity crude daily. No. 4 is drilling ahead at 1850 ft. Standard Oil Co. is ready to run water witch in Los Flores No. 6, after the well pumped water at the rate of 750 barrels daily, along with an oil trace.

Union Oil Co. is grading for Bell No. 32, No. 43 and Cal Coast No. 21, and has foundation in for Bell No. 24, No. 42 and No. 45.

Capitan Well Brought In

On its Covarrubias lease in the Capitan field, Shell Oil Co., Inc., has completed No. 148 at 3913 ft., flowing 105 barrels of oil and 68,000 cu. ft. of gas a day. Casing is set at 3898 ft.

Signal Adds Elwood Well

Signal Oil Co. has brought to successful conclusion its State No. 208-2 at 4805 ft. for a yield of 248 barrels of 35.2 gravity oil a day. Location is in the Elwood field, Santa Barbara County, where No. 208-3 is rigging up and No. 129-11 is rigging to pump from 4885 ft.

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Tip Top Try Drills Ahead

L. W. Lockhart's Macrate No. 1 in Sec. 27-4n-25w in the Tip Top area, Ventura County, is drilling at 3560 ft. Drilling is in charge of T. P. Pike Drilling Co.

Casmalia Try Fishing Collar

Having suffered a twist off at 5709 ft., Union Oil Co., is fishing drill collar and bit in its Escolle No. 1 explorer in Sec. 28-9n-34w in the Casmalia area, Santa Barbara County. Sisquoc No. 6 in Sec. 2-8n-31w in the Sisquoc area is spot coring at 4250 ft.

Monterey Job Spot Coring

The Texas Co. is spot coring at 3245 ft. with Aurignac No. 1 in Sec. 4-23s-10e in the San Ardo area of Monterey County, after running electric log. In Sec. 6-23s-10e, C. C. M. O. Co. is drilling shale with San Ardo No. 6-G1 at 4250 ft.

Gaviota Oil Being Sought

Seeking new oil in the Gaviota area of Santa Barbara County, the Barnsdall-Honolulu Oil combination's Petain No. 1 in Sec. 5-5n-32w has reached 2100 ft. A core between 1865 and 1885 ft. recovered one foot of shell and nine ft. of siltstone.

Red Mountain Test Gets Deep

Continental Oil Co. last was reported making hole ahead at 10,850 ft. with its No. 2 wildcat on the Rancho Casitas in the Red Mountain area in Sec. 7-3n-23w, Ventura County.

Kirby Hills Area Outposts Located

Shell Oil Co., Inc., has staked location for two outpost drilling jobs on the north fringe of the Kirby Hills gas area in Solano County. Wagonet No. 1 will drill in Sec. 24-4-1w and Wagonet No. 2 in Section 19.

West Mountain Try Runs Pipe

Casing is being run in D. D. Feldman's Richardson Estate No. 1 test in Sec. 14-3n-21w in the South Mountain area of Ventura County. Total depth is 4675 ft., with plug at 4042 ft. Oil showings were encountered at several levels. David C. Martin is geologist for the operator.

Los Alamos Test Rigging To Pump

Whittier Associates, Barham No. 3 in Sec. 11-7n-32w in the Los Alamos area, Santa Barbara County, is rigging to pump from a total depth of 5848 ft. Recovery on formation test was rumored as 18 gravity oil. Top Chert was placed at 5350 ft.

Oxnard Test Rigs Portable

In the Camarillo-Oxnard area, Rothschild Oil Co. is rigging portable equipment to drill Dempsey No. 1 in Sec. 29-2n-21w. Location falls near Beardsley Road and Central Ave.

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Goleta Wildcat About to Core

With present depth below 2060 ft. Ohio Oil Co. apparently is about ready to start coring with Prevedello No. 1 prospect job in Sec. 1-4n-28w in the Goleta area. Ralph M. Parsons is contractor.

Union Plans Torrey Test

Location has been staked by Union Oil Co. for its Torrey No. 62 in Sec. 5-3n-18w in the Torrey Canyon area, Ventura County. Work is expected to begin almost immediately. In the Orcutt field, Santa Barbara County, the company has foundations built for Newlove No. 53 in Sec. 25-9n-34w and Squires No. 28 in Sec. 23-9n-34w.

Add Producers At Santa Maria

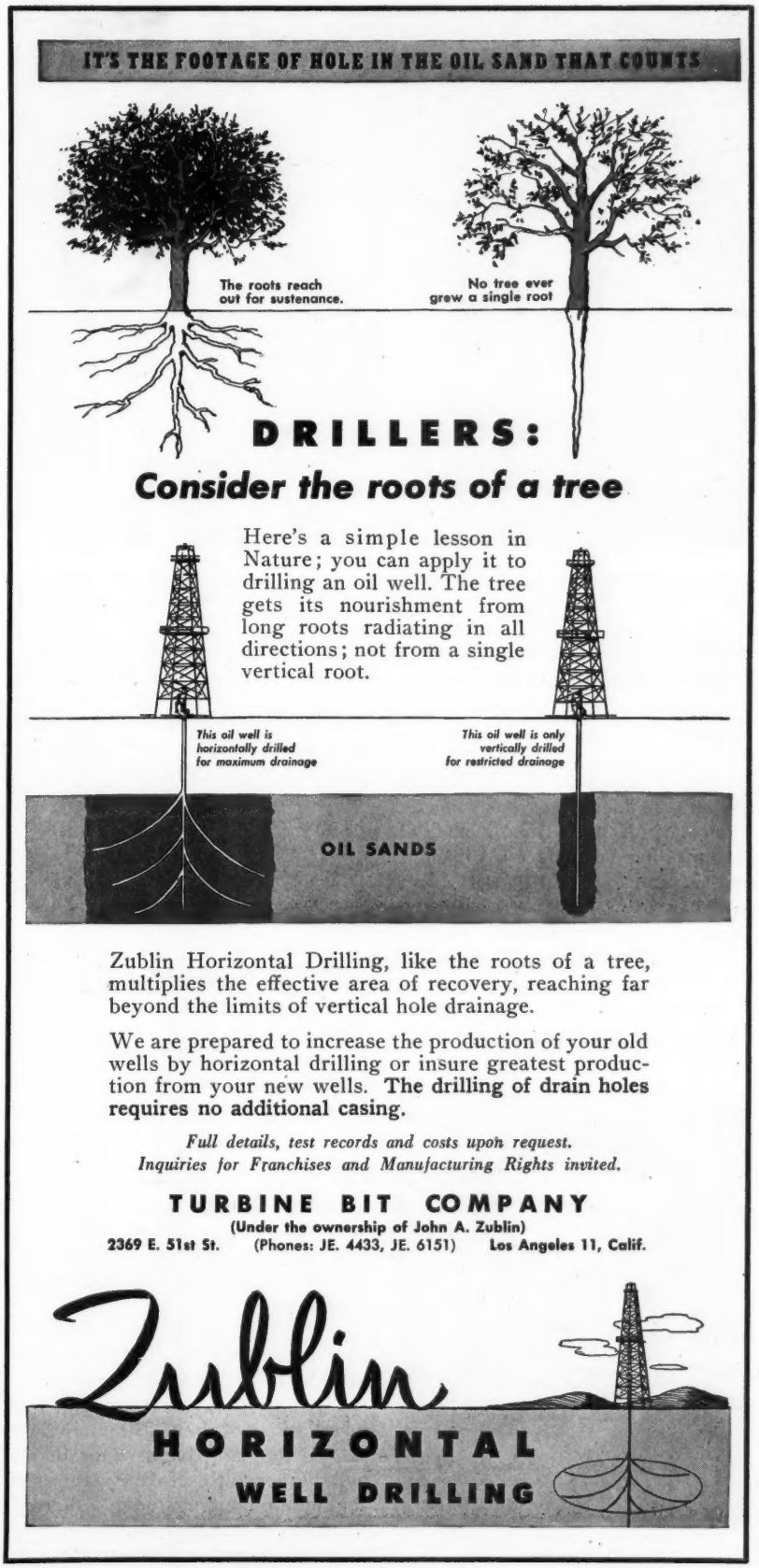
Three new wells have been added as producers in the Santa Maria Valley field. General Petroleum Corp. has completed J. E. O'Donnell-Defense No. 1 in Sec. 20-10n-34w for 153 barrels a day from 5100 ft. Pacific Western Oil Corp. has brought in Frank Vicente No. 5 in Sec. 27-10n-34w at 5417 ft. for 245 barrels daily. Sunray Oil Corp. has finished Sander No. 3 in Sec. 22-10-34 at 5011 ft., yielding 130 barrels. Sunray recently announced the merger with Transwestern Oil Co., which was approved at a special meeting of Sunray stockholders held at Wilmington, Delaware.

Conejo Test Now Abandoned

J. P. Oil Co., Boylan No. 1 in Sec. 23-1s-20w in the Conejo area has been officially abandoned at 3050 ft. Idle since October, 1945, the project was spudded in the summer of 1941 by Boylan Oil Co.

Gato Ridge Well Pumps

Barnsdall Oil Co. has given the finishing touches to Magenheimer No. 3 in Sec. 9-8n-32w at 3900 ft. for 70 barrels of oil a day, cutting 75 per cent. Tognazzini No. 17 is drilling at 1550 ft. and having circulation trouble.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Herschel Y. Hyde (right), newly appointed vice-president of manufacturing for Tide Water Associated Oil Company, is being presented with gold pen and pencil set by C. K. Viland on behalf of his associates.

Hammer Elected President of Security Engineering Co.

A change of officers has been announced by Security Engineering Co., Inc., Whittier, Calif., one of the Dresser Industries. W. E. Sievers, former President, has been elected Chairman of the Board, and O. Hammer has been elected President and General Manager. "Ott" Hammer has been associated with Security since its inception in 1931 when the Sievers Reamer was first introduced.

Production facilities of Security Engineering are being expanded, including the installation of special high speed machinery and a new electrical heat treating plant.

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O. Hammer

National Supply Issues New Bulletin

Complete product detail, including cutaway and "explosion" illustrations, are given in The National Supply Company's new bulletin No. 321 on the company's power slush pump, Ideal Type C-250. In its sixteen pages the power slush pump bulletin describes the pump's general and special features, carries a performance chart and complete specifications, eight illustrations and a blue print.

The extreme ruggedness and durability required of modern drilling machinery is stressed in the bulletin, pointing out that hundreds of installations of the C-250 pump have proved its ruggedness. One of the most important exclusive features of the pump is its patented intermediate baffle wall that positively prevents mud contamination of crankcase oil. The patented "GT" pistons give accurate clearances, excellent sealing action and long life, and the piston rod provides positive seal between piston and rod without danger of excessive stress in piston body.

This bulletin is available by writing The National Supply Company, P. O. Box 899A, Toledo 1, Ohio.

Associated Man Honored

At a recent gathering at Associated's Avon Refinery, Herschel Y. Hyde, newly appointed Vice President of Manufacturing for Tide Water Associated Oil Company, was presented a gold pen and pencil set by members of the company's Research and Development Department. Hyde, for many years head of the research department, received the gift from his co-workers in recognition of his cooperation and leadership.

C. K. Viland, who has been promoted to succeed Hyde as General Supervisor of Research and Development, was master of ceremonies at the gathering and made the presentation.

Haering Issues Bulletin On Hydraulic Systems

Hydraulic Systems, operating at 1200 p.s.i. and 800 p.s.i., present some unusually troublesome and costly problems. Cracking of soluble oil solutions, cooling chambers completely closed with scale deposits, general corrosion, excessive "down" time, and high "outage" of expensive parts introduce complications which tested the efficiency of the Glucosates. An interesting discussion of the solution of these problems is found in the current issue of H-O-H Lighthouse, just released. Write for your free copy. Address D. W. Haering & Co., Inc., 205 Wacker Drive, Chicago 6, Illinois.

Eureka Try Awaits Parts

The Texas Co., Holmes-Eureka No. 3 in Sec. 22-3n-1w in the Eureka area of Humboldt County has reached 3945 ft., but now is idle awaiting Diesel engine parts. The test is primarily for oil. In the event of failure, efforts will be directed towards completing as a producer of gas.

Ralph Bailey

Republic's Machinery Men Return

Ralph Bailey spent 4½ years in the Air Corps. Entered the service as a private and was discharged as Flight Officer. Collected four air medals, the D.F.C., and four battle stars chasing the Japs out of the South Pacific. Now back on the sales desk at the Manufacturing Division.

Bob Ramey returns after three years in the Navy where he skippered a net layer in the Pacific. Always interested in boats and sailing, this job suited him until the war was over. Having now exchanged his blues for civvies, he is happy to be back in the sales department of Republic's Manufacturing Division.

Bob Ramey

Pictured above with some of the officials of the Halliburton Oil Well Cementing Co., shown with the French Commission, recently guests in California of the Halliburton Co., where they were taken on an aerial tour of California. The men shown are (left to right): B. R. Thompson, Halliburton West Coast Sales Manager; Ludovic Simulin, Societe Nationale des Petroles d'Aquitonie; T. Armstrong, Halliburton Avenal Camp; Eloi Bernadac, Ingenieur Civil des Mines, Director Technique de la Regie Autonome des Petroles; George Le Polles, Regie Autonome des Petroles; J. E. Lacy, Halliburton Superintendent, Calif. Division; Curtis Cross, Halliburton Superintendent, Dhahran, Saudi Arabia; W. Hottle, Halliburton Pilot; H. E. Doane, Halliburton Bakersfield Manager.

Lohn Advanced by Ducommum

Albert W. Lohn has been promoted to vice-president of Ducommun Metals & Supply Co., according to an announcement by Emil Ducommun, president. Mr. Lohn will continue to serve as general manager of the company, a position he has held for the past seven years.

Albert W. Lohn

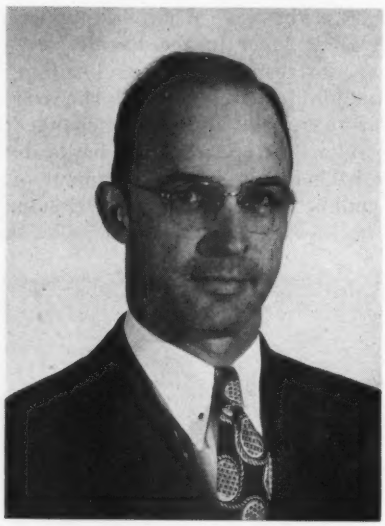
Al has held many different jobs with Ducommun since he started work there 35 years ago and was successively packer, checker, city buyer, salesman, resident San Diego salesman, metropolitan salesman assistant credit manager, credit manager, and general manager. He speaks Spanish fluently.

Ducommun, established in 1849, is a distributor in California for the lines of some 600 leading manufacturers of steel, brass, copper, pipe, tools, abrasives, and industrial supplies.

Drilling Crew Arabia Bound

E. C. Brown, president of Brown Drilling Company of Long Beach, and a complete drilling crew have left by plane for Saudi Arabia to begin actual operations on a drilling program there. The wells will be drilled under contract for the Arabian-American Oil Company, a Standard of California affiliate.

Members of the crew, in addition to Mr. Brown, are J. M. Wilson, superintendent; E. E. Dawson, petroleum engineer; Glenn Robinson, tool pusher; K. L. Bourdo, mechanic; Leon Mounts, John Lemke and A. D. Dale, drillers, and B. Gent, Carl Teeters, Calvin Lawson and Lewis Dunn, derrickmen.



T. R. Foster has joined Clark Bros. Co., Inc. at Olean, N. Y., where he will head up Clark's Centrifugal Compressor Sales Department.

Mr. Foster is a graduate of Georgia Tech., and a member of the A.P.I. and Engineering Societies A.S.M.E. and A.S. R.E.

Previous to joining Clark, he was associated with the Carrier Corp. for 17 years where he had extensive industrial experience as a specialist in the application of Centrifugal Compressors for the compression of petroleum hydrocarbon gases.

Val. L. Forsyth, Field Service Engineer for Lane-Wells, has been promoted to Assistant Chief Engineer according to an announcement by N. L. Dorn, Chief Engineer and Vice-President of the company.

Mr. Forsyth, widely known in petroleum engineering circles, has been with Lane-Wells since October of 1938. He has been identified with the development and testing of many of the company's recent improvements in equipment and service technique, particularly for gun perforating.

HOLD YOUR BONDS

TIME TO CHECK YOUR **DEHYDRATION**

	Yes	No	Don't Know
Are you using the right grade?	☐	☐	☐
Are you using the right amount?	☐	☐	☐
Are you operating efficiently?	☐	☐	☐

If your dehydration doesn't meet your needs 100%, we'll gladly give you expert advice based on your individual requirements. No obligation. Just drop a card to

NOBS DEHYDRATING CORPORATION
2465 East 53rd St., Los Angeles 11, Calif.

THIS LAUGH

OFF!!

During one of the Irish rebellions, an Irishman who was being held a political prisoner, received a letter from his wife saying that in his absence she was going to have to dig up the garden herself. Pat wrote at the beginning of his next letter: "Bridget, please don't dig in the garden, that's where the guns are." The letter was duly censored, and in a short time a lorry-load of men in khaki arrived at Pat's house and dug up the garden from end to end. Bridget wrote to Pat in desperation, saying, "The soldiers came and dug up the garden, every bit of it, and I don't know what to do." Pat's reply was short and to the point. He wrote, "Put in the spuds."

A Protestant clergyman was walking down the street dressed in ministerial black when he met two Catholic boys. One of the boys, drawing conclusions from the garb,raised his hat and said, "Good morning, Father."

The other boy nudged him and whispered, "Quiet, stupid, he ain't no father; he's got a wife and three kids."

Amy was one of the most popular girls in town, and when she married the church was crowded. After the ceremony friends rushed to kiss the bride. After about half an hour the breathless girl looked puzzled and, looking down at one little man, she said, "I don't know you. Why are you kissing me?"

The little man scratched his head. "I dunno, lady. When I joined this line outside, I understood it was for cigarets."

"I love you, ouch!"

"I love you too, ouch!"

And there you have the tender love story of two porcupines.

Doctor, come quick. My wife has appendicitis."

"Nonsense, my friend. I took out your wife's appendix several years ago. Did you ever hear of a woman having a second appendix?"

"No, Doctor. But did you ever hear of a man having a second wife?"

"Who told you that you could neglect your duties just because I give you a kiss now and then?" demanded the irate oil man.

"My lawyer," coyly replied his secretary.

"My worst sin," she sighed, "is vanity. I spend hours every day admiring my beauty."

"That's not vanity," her friend replied. "That's imagination."

There once was a young lady of
Trent,
Who said she knew what it meant
When men asked her to dine
Gave her cocktails and wine,
She knew what it meant . . . but she
went.

"Have you had any experience in defense work?"

"I'll say I have! I used to go with a sailor."

"You know Rastus ever' time Ah kiss ma' wife she just closes her eyes and hollers."

"Ah'l say she do!"

"What dat you say, Rastus?"

"Ah say . . . she do?"

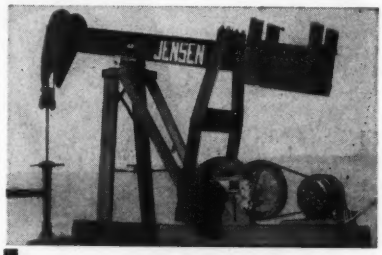
Tourist: "Lived here long?"

Native: "Don't know. Hain't dead yet."

A man was filling out an application for life insurance. His father had been hanged, but he did not want to admit the fact. So when it came to fill in "cause of father's death," he wrote the following: "Met death at a public function, during which the platform on which he was standing gave way beneath him."

Mess Sergt.: "I cook and slave for you guys over a hot stove all day and what do I get? Nothing but complaints."

G.I.: "You're lucky—we get indigestion."



CALIFORNIA COCKTAIL

You make it with oil, sweat, good judgment and the right machinery. Shake 'em all together with a JENSEN Pumping Unit and you're bound to come out feeling fine.

You'll never have a hangover if you use JENSEN Units. Won't make your stomach turn sour and they're easy on the pocket-book.

When you get ready to make your California Cocktail give us a call. We may not have the right size in stock but we'll surely try to get it for you.

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EXPORT OFFICE, 50 Church St.
New York City

McDonald Introduces New Snake Bite Kits

This McDonald Snake Bite Kit of sturdy plastic incorporates all the recent developments acquired from war time experiences in the treatment of poisonous snake bites. Instead of the usual feeble suction device, in this kit the suction so vitally necessary in the immediate treatment of the bite is provided by a small but powerful pump which can be operated with one

hand. A real lancet is supplied for making incisions, and all other materials are of the finest approved type, sterile when packed, yet so arranged in the kit that they are ready for instant use. Simple, illustrated directions are printed on the inside cover of the kit, which in turn fits tightly to exclude moisture, dust and dirt. The complete kit is light in weight, small enough to fit a purse or vest pocket, is standard in size so as to fit unit-first aid sets and attractively made of green plastic. A bulletin may be obtained by writing B. F. McDonald Co., 5112 S. Hoover St., Los Angeles 37.

Ingersoll-Rand Issues New Bulletin

Ingersoll-Rand Co. announces the publication of a 12-page, 2-color bulletin entitled, "Process Pumps," which describes the company's line of single-stage pumps built for general service in the refinery, process, coke by-products, and related industries.

Quoting the catalog, "these pumps will handle liquids at temperatures from below freezing up to 800°F. They are available for capacities up to 3200 gal. per min. and in a wide range of material combinations to suit the liquid being pumped.

"Every practical feature contributing to dependable operation and low maintenance has been incorporated in the design."

A number of cross sections and photographs clearly show the various features of these pumps as well as the several modifications available.

Of further interest is an illustrated discussion of the Cameron Shaft-Seal which is optional equipment in the place of the conventional stuffing box to save leakage and reduce maintenance.

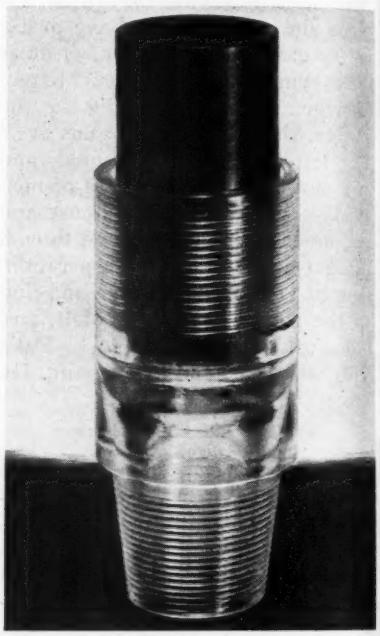
A two-page spread of typical installations rounds out this informative bulletin. Copies may be obtained by writing Ingersoll-Rand Co. at 11 Broadway, N. Y. 4, N. Y., or any of its world-wide branches. Ask for Form 7094.

Plastic Models Demonstrate Shrink-thread Drill Pipe

In order to show customers how its famous shrink-thread drill pipe actually works when replacing a wornout tool joint, The National Supply Company is furnishing its salesmen, field engineers and store managers with plastic working models.

In replacing a worn out tool joint in the field the same procedure is used as in the original factory assembly. It is expanded by heating, screwed onto the pipe and allowed to cool. Upon cooling, the tool joint shrinks tightly on the pipe. The plastic models work the same way, the salesmen using hot water instead of a furnace to heat the tool joint.

The drill pipe end of the models is made of bakelite and the tool joint of transparent lucite. Assembled, they are three and three-quarters inches long, exactly one-quarter the size of the original pipe and joint and, of course, very much lighter for the salesmen to carry. In reduced size they are exact duplicates of the original down to the finest detail. The salesmen can show how the special thread eliminates last-engaged thread failures and washouts by eliminating the notch effect at the bottom of the conventional "vee" type threads. It also can be seen how the conical seal, on the small end of the joint ahead of the pipe threads, prevents leakage and washouts.



Plastic model of bakelite and transparent lucite of National Supply Company's shrink-thread drill pipe used by the company's salesmen, engineers and store managers in showing how to replace a wornout tool joint.

By using hot water in assembling the model, the salesmen can demonstrate the shrinking-on process. Since field replacement of a worn-out tool joint requires only a small portable furnace and a few simple hand tools, the elaborate and heavy equipment of a machine shop are eliminated. This can be done at the rig while it is in operation and the contractor not only obtains a typical mill-applied joint, but saves in shut-down time and trucking expense.

BUY

BONDS